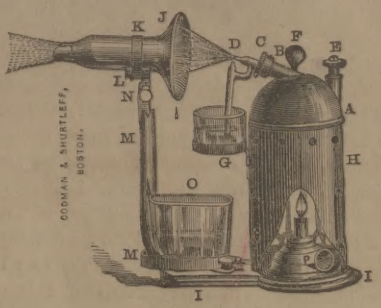
Beigel et al

"Where a direct influence is possible to the physician, he will never think of attempting to reach his aim by circuitous routes. The straight way in medicine is also the best and most effectual; and those branches of our art which could pursue this direct track, have enjoyed quick and conspicuous progress."— BEIGEL.



INHALATION OF ATOMIZED FLUIDS,

By H. BEIGEL, M. D., L. R. C. P.

[FROM THE LONDON LANCET]

ON THE TREATMENT OF

CHRONIC DISEASES OF THE LUNGS,

BY THE

INHALATION OF ATOMIZED FLUIDS,

By MORRELL MACKENZIE, M. D.

[FROM THE LONDON MEDICAL TIMES AND GAZETTE.]

A NEW MODE OF TREATING

DISEASES OF THE CAVITY OF THE NOSE,

By J. L. W. THUDICHUM, M. D., M. R. C. P.

Lettsonian Professor of Medicine of the Medical Society of London.

[FROM THE LONDON LANCET.]

Seventh Edition.

PUBLISHED BY

CODMAN & SHURTLEFF,

13 & 15 TREMONT STREET, BOSTON.

CIRCULAR.

HAVING for several years devoted much attention to constructing Apparatus for the Atomization of Liquids, and having been successful, — we believe, from testimony of the most eminent medical authority, — in producing more simple, reliable, and convenient instruments than any hitherto constructed, we are led to publish, in connection with a description of them, two articles from foreign authors of high standing, in which they show the great advantage of employing Atomized Liquids in diseases of the Throat and Lungs.

We have also introduced an article "On a new Method of Treating Diseases of the Nasal Organs." A description of the Apparatus required for its employment may be found on page 24. For much valuable information, enabling us successfully to adapt the apparatus for Atomization to its uses, we are indebted to the physicians of this city specially engaged in the treatment of diseases of the Lungs and Throat, who have openly signified their good opinion of the merits of this form of inhalation, and who urged us to enter upon the manufacture of the instruments we now offer to the profession.

Since we commenced their manufacture, several important improvements in these Instruments have been awarded Letters-patent, and are not found in any other apparatus for Atomization.

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GOLD MEDAL.

(Signed) GILMAN KIMBALL, M. D., *Chairman.*"

The parts of each kind being interchangeable, physicians at a distance requiring new tubes or other parts, can be sure that they will be adapted to the apparatus previously purchased.

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1st. Because being self-acting, it produces an even and continuous flow of spray without inconvenience or labor.

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On the other hand, the Air Apparatus, with suitable tubes, is better adapted for making local applications to the different parts of the fauces, and to external surfaces, and is the only form of Atomizer which can be used for Local Anæsthesia.

In ordering, the cuts, or numbers of the instruments required should be referred to, to prevent possibility of misunderstanding. To save collection expenses, funds should always be sent with the order, either in a post-office order, banker's draft, or registered letter. For safety of funds addressed to us by any of these methods we will be responsible.

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For such testimony in regard to the value of our Apparatus, as will be most highly esteemed, we refer to pp. 25, 26, and 27.

CODMAN & SHURTLEFF,

13 & 15 Tremont Street.

BOSTON, July, 1872.

From the London Lancet.

ON THE INHALATION OF ATOMIZED FLUIDS.

BY H. BEIGEL, M.D., L.R.C.P.

THE application of medicaments is effected in a two-fold manner, viz.: either directly on being applied immediately to the suffering part, or indirectly by being received into the circulation of the blood; so that through this agency, which reaches all parts of the body, it may also affect those parts on which we intend to act. Where a direct influence is possible to the physician, he will never think of attempting to reach his aim by circuitous routes. The straight way in medicine is also the best and most effectual, and those branches of our art which could pursue this direct track have enjoyed quick and conspicuous progress. We need only call to our mind surgery, opthalmology, midwifery, and partly also, the treatment of skin diseases.

But it is not very long since, that even in such cases as catarrh of the conjunctiva, simple ulcers, scabies, &c., very many compound medicines were ordered, — a kind of therapeutics which disappeared with the development of local treatment. Many parts of the body will certainly, by their position, ever exclude a direct proceeding in the matter just spoken of; as, for instance, the basis cranii, the heart, the pancreas, spleen, kidneys, &c., because no natural duct leads us to them. But the natural ways leading to others, which are therefore within our reach, have not been sufficiently appreciated. This was the case with the organs of respiration. The cavum oris and the pharynx were too easily accessible to be overlooked; but the glottis was considered a stoppage for any further advance, and the trespassing on which is almost impossible. One thing remains remarkable: It has always been observed, that one of the most important occurrences in life, respiration, proceeds in the most immediate manner; that the inhalation of different gasses produces very marked effects upon the organism; and although man was, and usually is, so ready to imitate easily explicable phenomena of Nature, and to use them for his benefit, nevertheless the attempts to gain influence upon the body, and particularly upon the organs of respiration, through breathing an artificially-created atmosphere, were very rare.

Grecian, Roman, and Arabian physicians recommended inhalations, but never attempted to use anything but vapors and fumigations; so that a non-volatile chemical body could not come into contact with the organs of respiration. But at all times the urgent necessity of immediate application of medicaments in the organs of respiration was so much felt, that Mascagni, a very renowned physician, once said, "if ever a specific should be devised against consumption, it would be such as to be introduced into the organism through the windpipe." Besides this inhalation, some physicians of later date made use of blowing pulverized medicaments into the larynx in diseases of that organ. Aretaeus made use of a tube for blowing, which method in our times has been renewed with great benefit by Trousseau and other physicians. In many Continental spas,

arrangements were made to create an atmosphere suffused with mineral water, which the patient was recommended to inhale. But inasmuch as the mineral water was turned into vapor, it need not be said that the so-called "vaporatoria," or inhalation saloons, were filled merely with common water vapors.

In 1849, Auphan, of Euzet-les-Bains, originated the idea of atomizing the mineral water, by throwing a jet of the liquid against the wall of the inhalatory. After a short time, the same system was adopted in Lamotte-les-Bains. But Sales-Giron first constructed at Pierrefonds an apparatus through which the fluid was subdivided into a fine vapor, which was inhaled by the patients with great benefit. His chief merit consists in his transferring this method from the vaporatory of the spas, to which it was hitherto restricted, into the hands of every physician, by devising a portable inhalation apparatus. Thus a long-cherished wish of physicians was realized, and from that time a new era in the local therapy of the organs of respiration commences. This apparatus of Sales-Giron consists of a vessel filled with the fluid which is to be atomized. Above this vessel an air-pump is placed, which compresses the air above the surface of the water. The pressure is indicated by manumetre. The water escapes through a fine opening of a tube, and strikes against a small metal disc, where it is turned into very minute vapor, which is inhaled by the patient. When Sales-Giron placed the results obtained in his vaporatory, and some years later his portable apparatus, before the Académie de Médecine, of Paris, great sensation was caused. At first, it was questioned whether the atomized fluids reached the larynx, the trachea and the lungs. Different opinions arose, and various experimenters arrived at different results. Meanwhile the new method gained more partisans. At last the Académie de Médecine took the investigation into their own hands; and, on January 7th, 1862, Poggiale, the reporter of the elected committee, in a deeply interesting, extensive, and brilliant discourse, gave a substantiated statement of the case, based upon experiments. This statement was entirely in favor of the new method; and it was experimentally proved also by other authorities, that not only the vapor, but the chemical bodies, which, by being atomized, are incorporated into it, reach not only the trachea, but the cells of the lungs.

Some time after, (in 1859,) Matthieu constructed an apparatus which he called nephogine, and exhibited it before the Académie de Médecine. But the greatest simplicity in the construction of the inhalation apparatus was attained by Dr. Bergson. He placed two glass tubes with very fine openings at one end, at right angles to each other; the other end of one tube dips into a vessel filled with the fluid which is to be subdivided, while the other is fastened to a caoutchouc tubing, about a yard in length. At the middle of this tubing is attached a rubber ball, and the end extends into a ball also, so that the one in the middle represents an air reservoir, and that of the end a pair of bellows. If the latter is pressed by the hands of the patient, the air in the upper ball is compressed, escapes through the fine opening, and causes a vacuum in the other tube; the fluid of the vessel then ascends through aspiration, and is turned into fine mist when leaving the capillary opening. (See figure 3, page 17.)

Upon this principle, which is as excellent as it is simple, Siegle has based his inhalation apparatus; putting aside the bellows, which fatigued the hands of the patient very much, and substituting a vapor kettle, into which one of the tubes descended. The vapor issuing forth effects the same purpose as the bellows, and the patients inhale comfortably. One inconvenience which all the apparatus had in common was, that the cloud of vapor containing the subdivided fluid, not only rushed into the mouth of the inhaler, but moistened also his face. With indifferent medicaments this was only disagreeable; but with liquids of a more acrid or caustic nature, — as for instance nitrate of silver, — it was not only disagreeable, by reason of leaving black spots on the face and forehead, but even injurious as a caustic for the eyes. (See note.)

If we set aside the effect, praised by Demarquay, Leiblinger, and others, in conjunctivitis and keratitis, likewise the effect upon the ear, upon ulcers, &c., and only consider the effect upon the organs of respiration from the mouth and pharynx with its arches, the uvula, the glands through the larynx and trachea, with its ramifications to the lungs, we meet with a great number of diseases upon which the local therapy just spoken of exercises a great influence. But as the respiration is performed more or less powerfully and deeply, the atoms of the pulverized fluid reach the more or less distant organs of that function. From this fact it becomes self-evident that it will be necessary to respire feebly, if the influence should be directed upon parts situated in the mouth or pharynx; more powerfully and sometimes strenuously, if it should be our intention to act upon the larynx, trachea, or lungs. And further, as the lungs admit the greatest amount of air when the sitting position is assumed, it is manifest that we should place the patient in that position if we intend a deep penetration of the atomized cloud, whilst we should allow him to stand if we merely intend to act upon organs not so far distant. I do not intend to allude to such individuals as are excited and nervous at the aspect of every, even the most innocent instrument. Suffice it to say, that the inhalation apparatus do not enjoy an exception. But there are persons — happily not frequently met with — whose respiratory channels are so sensitive, even in a healthy state, that they cannot bear inhalations, either with pure water or any other fluid, at the first attempt, and several sittings are necessary to accustom them to the process. All cases of high sensitiveness which I have hitherto observed were patients with laryngeal diseases; whilst with others, and particularly with those suffering from diseases of the lungs, inhalations agreed very well.

The temperature of the atomized cloud, of course varies in proportion to the distance from the spout of the apparatus, and must be regulated according to the nature of the special case. For some patients, it is even necessary to have the fluid to be atomized, warmed. When the apparatus is in order, and ready to act, the patient stands or sits, and inspires more or less powerfully and deeply, according to the requirement of the case. The advice which has been given, that the patient should put out his tongue and keep his nostrils closed, when inhaling, is, in my opinion, superfluous and useless.

NOTE — The use of the shields described on pp. 16 & 19 serves to surmount these inconveniences more perfectly.

It would exceed the limit allowed me were I to attempt to treat on all the diseases against which atomized fluids in general, and especially inhalations, have been beneficially used. Demarquay has applied them in many cases, pharyngitis-granulosa, ulcera-syphilitica, laryngetis-cronica, and syphilitica, phthisis, &c., and reports that cure or improvement has often been obtained in a few days. Other authors, Zdekauer, Fieber, Schnitzler, Gerhardt, Lewin, Waldenburg, McKenzie, Gibb, and others, report favorable success by inhalations in cases of whooping-cough, asthma, inveterate bronchitis, aphonia, tuberculosis, gangrena pulmonum, pneumonia, bronchiectasis, emphysema, &c.

The number of the cures effected, as well as the time in which the cure took place, is far more favorable than in similar cases which were treated internally, and my own experience induces me to agree with that statement. The inhalations form a real specific is certain cases of hemoptysis, in cough which is a result of eccentric irritation of the larynx, or trachea, in hoarseness and aphonia as consequences of acute or chronic inflammation of the mucous membrane of the larynx. The cure is sometimes affected with amazing rapidity, after many other medicaments have been applied without effect. Of many cases which I have observed, I shall here mention a few only.

Case 1. A. B——, an unmarried lady, consulted me at the end of last year for hoarseness, from which she had suffered for several years, and which was the more unpleasant to her, as she sang well, and a great deal, previous to that affection, — a pleasure the deprivation of which gave herself and her friends great concern. The voice was coarse and without *timbre;* the larynx was painful only at the beginning; now it is indifferent to external pressure. Laryngoscopy can easily be effected, and shows only a slight unnatural redness of the mucous membrane of the larynx, and of the vocal ligaments. No other inconvenience exists. In course of the affection a great many medicines were tried, and all without any effect. I applied inhalations of alum (ten grains to the ounce of water). After three applications a striking improvement was observed, which, after five, was so complete, that I discharged the patient, advising her not to sing yet; but after a week she could no longer resist, therefore resumed singing, and sang as before the affection.

Case 2. C. D——, a merchant from Lima, advised by his physicians, left that country and came to England. His suffering consisted in a severe attack of a very troublesome cough, which came on every eight or ten days, and lasted for a day or two, and then ceased. During that time the sputa were tinged with a good quantity of pure blood. After each attack the patient felt very exhausted. When he came under my observation, he was very pale and emaciated; his voice was coarse. The result of physical examination was infiltration of the left apex; otherwise the conditions were normal. Three days after the examination he had a severe attack; he coughed frequently and very severely, and was not ten minutes without coughing. The sputa consisted more of blood than mucous, and were very copious. The quantity of blood he ejected during the day was about two tea-cups full. I ordered immediately an inhalation of tincture of sesquichloride of iron. The cough did not decrease; but the sputa,

after the first inhalation, was not tinged. The patient inhaled twice a day, and had, altogether, thirty inhalations. The intervals between the attacks were, in the meantime, much prolonged. Blood never appeared during the cough, which altogether disappeared when extract of hyoscyamus was substituted for the above mentioned liquor. The appearance of the patient had very much improved; and after six months' stay in this country he again returned to Lima, whence he has repeatedly written, assuring me of his perfect health.

Case 3. E. F——, a vocalist, had caught a severe cold, in consequence of which he was very often attacked with considerable pain in his throat of a choking character; he felt, besides, a burning sensation in the larynx, and his face was covered with perspiration. Each attack lasted about ten minutes, when it disappeared and returned several times in the course of the day. There was no typical appearance to be observed. The larynx was indifferent to external pressure. The result of larygoscopy was negative. Blistering, internal application of the acetate of morphia, cannabis indica, opium and iron, were had recourse to, but without any effect. I applied acetate of morphia by means of inhalation, (half a grain to an ounce of distilled water,) and the effect was, a perfect cure after ten applications.

In conclusion, I shall proceed to make a few remarks on the *medicaments I use for inhalation.* Generally speaking, every chemical body which is soluble can be atomized, and therefore inhaled. The largest number of remedies contained in the Materia Medica can therefore be used for the local therapy of the respiratory organs. But it must be borne in mind that, besides the local effect, the medicaments are much more readily absorbed through the mucous membrane than they are by internal application, — a fact which must be taken into consideration, when the dose is to be decided on.

The following medicaments are those mostly recommended and found beneficial by practitioners engaged in treatment by inhalation, and which I can recommend from my own experience: —

1. In inhalatory treatment of the respiratory organs, nitrate of silver deservedly occupies the first place. Its dose is three to five or ten grains, in one ounce of distilled water. It is particularly serviceable in inflammatory conditions of the pharynx and the larynx. The strength of the solution, the frequency of the sitting, and the duration of the same, must be adapted to the nature of the particular case. It need scarcely be mentioned that proper care must be taken if strong solutions are inhaled.

2. Much milder in its effects is nitrate of alumina, which, as far as I am aware, was first used by myself in inhalations. I prepared it from a simple solution of the metal in nitric acid, working the crystals in distilled water repeatedly, condensing the solution by evaporation and recrystalizing. It rendered good service, not only in inflammation, but also in nervous affections of the larynx and trachea. The dose is three grains in an ounce of distilled water.

Very useful medicaments are the following: —

3. Tannin, — three grains to eight or ten grains in one ounce of water.

4. Alum. — four grains to ten or fifteen grains, ditto.

5. Solution of sesqui-chloride of iron, — one minim to five or ten minims, ditto.

6. Corrosive muriate of mercury, — four grains to one or two ditto.

7. Acetate of lead, — a grain and a half to eight grains ditto.

8. Sulphate of zinc, — half a grain to five ditto.

9. Common salt, — which has long been considered a most useful agent in the treatment of diseases of the respiratory organs. On the supposition that it was present in the atmosphere near the sea and saline springs, physicians have been in the habit of sending thither patients affected with chest diseases; and to give the full benefit of it to those who are not able to travel, it had always been the object of physicians to create an artificial *sea air*. But it is only since the invention of the inhalation apparatus that this object could be fulfilled. The application of common salt for the purpose of inhalation is therefore very extensive, and produces very marked effects. I make use of it in doses of from five to ten and twenty grains to an ounce of water; and one ounce is effective, particularly in diseases of the lungs and windpipe. In nervous affections, particularly of the larynx, and also the asthma, narcotics have been used especially.

10. Tincture of opium, — one to ten minims in an ounce of water, and the preparations of opium.

11. The salts of iodine, bromine, chlorine, and some others. Authors report the good effects of arsenic, in the shape of Fowler's solution, and in a dose of half to five minims in an ounce of water. Lastly, besides the different mineral waters, there must be mentioned: —

12. Pure or distilled water, cold or warm, or even as hot as the patient can bear it. It renders, in many cases of inflammation and paralysis of parts of the larynx, good service.

From the London Medical Times and Gazette.

ON THE TREATMENT OF CHRONIC DISEASES OF THE LUNGS BY THE INHALATION OF ATOMIZED LIQUIDS.

BY MORELL MACKENZIE, M. D.

The author, after an elaborate description of the various instruments invented for the purpose of introducing medicine by means of inhalation, enters into an account of the apparatus invented by Dr. Siegle, of Strasbourg, and himself, which he describes. Dr. Siegle's simple apparatus is an excellent one, and the author stated that he had often used it with great advantage. After enumerating the physicians and physiologists who had worked at the subject on the Continent, the author analyzed the experiments which had been performed by Demarquay, Fournie, Brian, and others, on rabbits and dogs. He then related his own experiments, which had been carried out in conjunction with Dr. Duchesne, of Woodford. After detailing various experiments performed on

pigs and dogs, Dr. Mackenzie sums up the results. 1st, Demarquay's and Brian's experiments on dogs; 2d, his (Dr. Mackenzie's) on pigs and dogs; 3d, an experiment performed by Demarquay, in the presence of numerous witnesses, on a woman with a tracheal fistula, in which it was shown that the inhaled liquid penetrated to the trachea, though there was a great obstruction at the upper opening larynx. This experiment which had been previously unsuccessfully performed by Fournie, has since been repeated by Lieber, Schnetzler, and others, with result, similar to those obtained by Demarquay. 4th, the fact first shown by Bataille, and since by Moura Bourouillou, the author, and others, that after the inhalation of a colored atomized solution the sputa remained tinged long after the employment of the laryngoscope could detect any traces of the material used. On the one hand there was an immense number of positive proofs of the penetration of atomized liquids: on the other hand there were a few experiments performed, with negative results. It was scarcely necessary to remark that any experiment might be performed — the most simple chemical test employed — in a manner to insure failure.

But a few experiments of this sort could have little weight against the mass of evidence on the other side. The author stated that the greatest benefit from this system of therapeutics might be expected and had resulted, in bronchitis, asthma, and hæmoptysis. He brought forward twenty-two cases treated between October, 1863, and January, 1864. There were ten cases of bronchitis, six of phthisis, two of hæmoptysis, three of asthma, and one of whooping-cough. The author did not believe that in the phthisis the treatment would have a positively curative effect, but was beneficial in cutting short intercurrent bronchitis. Of the twenty-two cases detailed, only two were unable to make use of this curative process. Of the ten cases of bronchitis, eight were cured, one relieved, and one obtained no benefit. The average duration of the time required for curing these cases, though most of them were severe, and of long standing, was only fifteen days and a quarter. The shortest time was six days (a severe case); the longest forty days. The duration of treatment was not in proportion to the severity of the disease, one mild case requiring twenty-eight days to get well. Of the six patients laboring under consumption, two were unable to use the inhalations on account of the irritation which they caused. Of the remaining four cases, while the physical signs did not undergo any material alteration, the local symptoms (expectoration, pain and cough) were greatly relieved. The general health was much improved in two cases, Nos. 11 and 15, slightly in a third, and not at all in a fourth. In two cases of hæmoptysis, one severe and the other slight, the atomized liquids rapidly stopped the bleeding. In three cases of asthma, one a very severe case, which had obstinately resisted the ordinary treatment, this system of therapeutics soon gave relief. In one case of whooping-cough (in an adult) the inhalations gave immediate relief, and quickly effected a cure. The author stated that during the past year he had used atomized liquids in more than eighty cases of diseases of the lungs, and that he had found the plan of treatment no less successful than was detailed in this paper.

The various instruments referred to in the communication were brought before the society, and likewise diagrams illustrating their action and method of employment. Dr. Gibb said that the subject of the author's paper was one of the highest importance, and in which he took the greatest interest. In the earlier part of his professional career, he (Dr. Gibb) had looked forward to the time when some means might be devised for introducing fluid in a minute state of division into the interior of the bronchial tubes, which would prove more certain in its effects than the vapor inhaled from certain substances. From the evidence brought forward by the author, illustrated by experiments of his own and Continental investigators, he had not the slightest doubt that any atomized fluid reached the minutest bronchial tubes and air cells; and from his own experience of the inhalation of fluid thus atomized or pulverized, he was quite satisfied such was the case. With Siegle's atomizer, he had caused the inhalation of a solution of the iodide of silver, for a few minutes only, in a case rapid phthisis in the second stage of the disease, with profuse expectoration and laryngeal mischief. The effect of this was a general feeling of warmth throughout every part of the chest, and subsequent diminution of the expectoration. This feeling of warmth so generally diffused, convinced him that the atomized fluid had reached the minutest bronchi. As a palliative in some cases of phthisis, and as likely to diminish the amount of expectoration, the inhalation of atomized fluids would prove useful; but it never could be relied upon as a curative agent in this disease. With regard to bronchitis, the chronic form especially, asthma and hæmoptysis, his own experience agreed with that of the author, and showed that in many cases the greatest amount of relief could be obtained. Indeed, he had been surprised at the good results which sometimes followed, — in the two former, especially. As furnishing an additional and most useful therapeutic agent, in the treatment of laryngeal and chest diseases, the inhalation of certain atomized fluids must be regarded as one of undoubted value, and he (Dr. Gibbs) gladly bore testimony in its favor.

From the London Lancet.

ON A NEW MODE OF TREATING DISEASES OF THE CAVITY OF THE NOSE.

BY J. L. W. THUDICHUM, M.D., M.R.C.P.

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The treatment of diseases of the cavity of the nose has hitherto been attended with very great difficulties, owing to the circumstance that the cavity is large, complicated by many sinuosities, interrupted by many thin, bony, and membranous projections, and therefore little accessible, and for the most part not accessible at all, to instruments by which growths might be removed, or topical remedies applied. The removal of excrescences from the lower and median nasal canal was yet the most successful of surgical operations, although

it was frequently left incomplete, or remained unavailing, owing to the speedy return of the polypi. But the topical application of remedies for the treatment of acute and chronic affections of the nasal cavity, which is certainly the principal therapeutic requirement, and in many cases prevents the formation of polypi, could only be attempted by mechanical contrivances which were so objectionable to the patients, that, after longer or shorter trials, they had to be abandoned. I have had under my own care several important cases of affection of the nasal cavity, in which the mere possibility of cleansing the cavity of the nose would have been a great boon to the patients; others, in which I have no doubt the application of remedies, such as we are in the habit of using in conjunctivitis, would have effected a speedy recovery from painful and troublesome conditions. The only mode of cleansing the cavity of the nose, which was then known in medical science, was by injections with a syringe; but, owing to the velocity with which the injected fluid touched the walls of the nose, this process always created much irritation, pain, sternutation and lachrymation, and the patients mostly opposed the entrance of the fluid by expiratory efforts, which, indeed, were the only means they had of preventing the fluids from running down the choanæ and reaching the larynx. The mere effect of pure water upon the Schneiderian membrane being highly irritating, two causes combined to defeat the object of injections of water; and when medicines which might be supposed to have a beneficial effect upon the diseased Schneiderian were dissolved in the water, they, although perhaps better tolerated than pure water, could not be kept sufficiently long in contact with the affected parts to exercise upon them even such slight medicinal action as their necessarily diluted state permitted. There was a third application that could be made, — namely, the introduction of medicines in the form of fatty or mucilaginous ointments. In one case in which I endeavored to benefit a chronic ozæna — a residue of scarlet fever — by topical applications, a solution of sulphate of zinc in intimate mixture with lard, had a most decided effect, the patient being much improved, though not cured. But this application of ointment to the surface of the lower canal of the nose, and to a part of the median canal, (which are the only portions that, as a rule, can be reached, even by clever manipulation,) is the most objectionable of any, so far as its accompaniments of irritation and pain are concerned, sternutation and lachrymation being not rarely long continued after it, and the peculiar pain producing a reluctance on the part of the patient, which it is difficult to overcome in young and old people. All these applications, then, were partial, imperfect, irritating, and consequently unavailing to effect the desired end. Many cases of superficial ulceration ended in caries, embittering the life of the patients, and, through the odor, making intercourse impossible and family relations troublesome; other cases of chronic inflammation ended in deformity of the external nose and the formation of polypi in its cavity, and produced a constant false resonance of the voice; a number lasted throughout a lifetime, the nose being a constantly weak part, and capable of prostrating the patient at any opportunity which dust and wind might afford; others had consequences even more severe, and the specific ulcerations of the

cavity of the nose only too frequently terminated in that sinking of its bridge, which is the most painful proclamation of disease with which a patient can become afflicted. Then there were the convulsive affections produced by local irritation in the nose — those cases of fabulous sneezing in which hardly any remedy availed, even in diminishing the number of spasms in time, because the centre and seat of the irritation could not be reached by medical agencies. Truly dangerous were some cases of bleeding from the nose, in which the broken blood-vessel could not be reached by either styptics or mechanical compression, and could not be made to contract by contact with that most powerful of hæmostatic agents, ice or ice-cold water. Not a few cases of this kind terminated fatally, or required the most desperate measures to prevent the fatal end, such as plugging of the nose and choanæ with sponges or tinder; and these not rarely left a condition of anæmia in which other accidental diseases could put a stop to life with comparative ease, or which continued without the supervention of other diseases, enfeebling and considerably shortening the rest of the life of such patients.

All these difficulties, and many more which might be mentioned, are removed at one stroke by the discovery of Professor Weber, of Halle: that when one side of the nasal cavity is entirely filled through one nostril with fluid by hydrostatic pressure, while the patient is breathing through the mouth, the soft palate completely closes the choanæ, and does not permit any fluid to pass into the pharynx (a physiological fact thus far already discovered by E. H. Weber, of Leipzig, before 1847, and published in Muller's Archiv, 1847, pp. 351–354); while the fluid easily passes into the other cavity, mostly round and over the posterior edge of the septum narium, in some persons also through the frontal sinuses, and escapes from the other open nostril, after having touched every part of the first half of the cavity of the nose, and a great part, certainly the lower and median canal, of the second half. By means of the application of this principle to the treatment of diseases of the nose, it is possible easily and frequently to wash the nasal cavity, to disinfect and deodorize it, to remove the sordes which accumulates so easily in it, and to apply to its surface a great number of beneficial medicinal substances, so as to prevent acute affections from extending, and to incline them towards a speedy recovery; to stop hæmorrhages, allay irritations, and subdue in a remarkable manner, chronic affections of the Schneiderian membrane, so as to re-establish a perfectly healthy surface and normal condition of the organ of smell.

The Apparatus,*— A rod of iron or brass, thirty inches in length, is fastened upright into a heavily-loaded foot, so as to form a firm stand. On this rod slides a nut which can be fixed at any height by means of a screw, and carries an arm and ring, in which is cemented a high cylindrical glass vessel of a capacity of from one to two pints. The glass vessel is open above, and its cavity contracts within the ring in which it is fastened, here directly to pass into a small-bore muzzle, to which a suitably-sized flexible india-rubber tube, thirty-six to forty inches in length, is fastened. To the other end of the india-rubber tube a stop-cock is fixed; upon this a little cup-shaped collar, and upon this the

For description of apparatus as made by us, see pages 21—22.

cylindrical perforated muzzle of gutta-percha or of prepared india-rubber. If now the glass-vessel is filled with fluid, and the little stop-cock immediately underneath the nozzle is opened, the fluid will escape at the fine openings of the nozzle; and if the nozzle accurately fits the nostril, and the fluid is allowed to flow, the fluid will enter and fill the cavity of the nose, as will be more especially described hereafter. Great care must be taken to ensure an adequate fitting of the nozzle to the nostril of the person who is to be operated upon, as, if fluid escape by the side of the nozzle, it makes the operation difficult and troublesome. It is therefore necessary to have several sizes of nozzles, to be fixed upon the stop-cock at will. In order to avoid all possible chances of infection, and ensure cleanliness, I lay it down as a desideratum, that every person using the apparatus should have his or her own nozzle, to be used exclusively by that person. In dispensaries and hospitals, where this cannot be so easily effected as in private practice, the utmost care should be exercised to clean the nozzles from any semi-solid matter which easily becomes firmly adherent to them. As the current is always directed outwards through the openings, there is hardly any chance of the interior of the nozzle becoming unclean or infectious. Yet it will be well to give to each patient, particularly if he be the subject of specific disease, his own apparatus. Even the suspicion that a patient might, by accident, blow into the tube and endanger his successor, will thus be avoided.

Of the fluids to be employed for rinsing the nose. — Pure warm water, when introduced into the nose by means of the apparatus, causes, in most persons, a very disagreeable sensation, ending in lachrymation and sternutation (or tears and sneezing,) with subsequent copious discharge of watery mucus from the nose. If the quantity of water run through the nose be large, the "cold" produced thereby, including the change in the sound of the voice, may last for some hours. To avoid this objectionable symptom, it is best to employ solutions of common salt, or other salts, of sugar or milk for rinsing the nose. In the course of practice, cases will arise in which all these solutions offer advantages. For general use, a solution containing one ounce of common salt in a pint of water, is satisfactory. Some persons will bear less salt; others will tolerate more. Of this solution, having a temperature rather lower than that of the blood, from one to four, or if desired, any number of pints, may be allowed to flow through the cavities of the nose. It does not easily produce sneezing, rarely lachrymation, and hardly ever any subsequent symptom of cold in the head. The saline solutions, which, next to common salt, offer the greatest advantages, are those of the common phosphate of soda, and phosphate of ammonia and soda. They can be used by themselves, or mixed with the common salt. Their alkalinity has a beneficial effect upon the irritated Schneiderian membrane, and dissolves, or loosens any deposits of mucus or pus, which so frequently dry and harden upon the surfaces of the nasal cavity.

Of the fluids to be employed for deodorizing the nasal cavity. — For this purpose I have employed dilute solutions of permanganate of potash. This agent has done me such excellent service in removing the fetor of the mouth in cases

of typhoid fever, that I was induced to apply it for the removal of the fetor of ozæna, and with the most striking and immediate success. A solution of from one grain to ten grains in a pint of water is a good proportion, according to the severity of the case. The solution tastes alkaline, and acts as a feeble escharotic upon healthy and particularly upon vascular and erythematous parts. When the margin of the nostrils is excoriated, the permanganate colors the excoriated part brownish; but the effect of this is rather beneficial than otherwise, as the excoriated and colored part dries easily, and after the shedding of the faint brownish pellicle, appears healthy.

Mode of applying these and other fluids to the nose by means of the apparatus. — The fluid, of the proper composition and temperature, is filled into the glass vessel. All air in the india-rubber tube is now replaced by fluid, the escape of the air upwards being facilitated by gentle manipulation. The glass vessel is raised and fixed in the position which will give the desired pressure. A little fluid is now allowed to escape from the nozzle, to make sure that all air is expelled. The patient (or healthy person, if it is only desired to show the physiological experiment) is seated in front of a basin, with his head and face slightly bent over it, the apparatus standing by his side. He is told to breathe through his mouth exclusively, and abstain from swallowing. The nozzle, previously selected as of proper size, and connected with the apparatus, is now inserted into one of the nostrils, and held there by the patient's hand of the same side. The little stop-cock (or tube) is now opened, and after a few seconds a continuous and rapid stream of fluid is seen to flow from the opposite nostril into the basin below. Persons who have control over themselves will always bear the experiment as here described; but young persons, nervous females, and children, become confused, begin to cry, or to swallow and breathe through the nose. In such cases the level of the fluid in the glass should be very little above the level of the introitous into the external ear, so that the fluid runs very slowly, or only drops out of the free nostril. The hand of the operator should be upon the india-rubber tube, to close it by compression the moment he sees bubles come through the nostril, or perceives that the patient swallows or becomes confused. It is always well to let the fluid pass at first under slight pressure, in order to allow sordes within the nose to be loosened and crusts of dried matter to be softened. When this has been effected, it is useful suddenly to raise the glass vessel and produce a rapid stream, which will then scour the impurities away. In some cases I have done this repeatedly with success. The loosening of crusts and lumps of inspissated mucous is always attended with some irritation, and also with retardation and diminution of the current of fluid. The sudden increase of the pressure is the surest means of causing the least inconvenience to the patient, and effecting in the quickest manner the purpose of the operator. It is also well to reverse the current now and then, as sordes are much better detached in that manner. If only one nostril is diseased, or the principal seat of the disease, I allow the fluid to enter by the opposite side, and to leave by the affected nostril. I then

change the current, and filling the affected nostril, allow the current to leave by the healthy one. Thus, half a dozen or a dozen changes may be usefully instituted. It is really surprising what an amount of sordes will sometimes be removed from the nose by the rinsing process. Any one who has seen it once, will easily conceive the manner in which, by means of these constant accumulations, nasal diseases became chronic, incurable, and lead to fearful suffering and death. When water has been allowed to run through the nose, it takes two minutes and a half, before the sense of smell returns to its integrity. When saline solutions have been used, it takes about a minute and a half; but after the alkaline solutions a minute suffices to allow the perception of odors to be clearer than before the application. If the special excitant of the olfactory, as the perfumers term it, the neutralizer and stirrer-up of smell, ammonia, is applied immediately, even in less time than a minute will be sufficient. There are cases of chronic coryza, with some blenorrhagia, in which the affection of the Schneiderian membrane prevents patients from satisfactorily performing their business, which requires a full command of the organ of smell. Chemists, perfumers, wine merchants, provision merchants, and others, may belong to this category. In cases of this kind the topical treatment is beneficial. After the application of alkaline solvents in particular, the sense of smell is clearer.

I hope that the advance which we are making in the treatment of diseases of the nose, may be shared by its physiology. There is no greater enjoyment of Nature's triumphs, and no greater safeguard against noxious things of all kinds, than a healthy nose.

Of the medicinal solutions which may be applied to the cavity of the nose. — Although the solutions before enumerated act in a measure as alteratives, resolvents, and escharotics, and, therefore, rarely constitute a sufficient medical application by themselves, yet they are more frequently used for preparing the nose for the application of more energetic and specifically acting solutions. To this latter class belong the solutions of alum, sulphate of zinc, and sulphate of copper — the best astringents; the solutions of nitrate of silver, and bichloride of mercury — the most suitable alteratives; and the solutions of chloride of calcium, in which suboxide or oxide of mercury is suspended in a finely subdivided state, together with the bichloride solutions — the best specifics. Of stimulating solutions, a mixture of eau de Cologne with water or salt water, is sometimes useful.

The probable concentration of these solutions can be surmised from the circumstance that the sensibility of the healthy nasal cavity stands about midway between that of the eye and the mouth. When the nasal cavity is completely filled with fluid, the specific sense of smell cannot any longer be exercised; even the solution of eau de Cologne is not perceived to be such when it once fills the nose. The sense of smell being thus entirely obliterated by the fluid contained in the nose, the reflex effects which substances may exercise by means of this sense are entirely absent; and the only impingement which the fluids can produce is upon the filaments of sensitive nerves coming from the fifth pair. It is owing partly to this circumstance that comparatively strong medicinal solu-

tions are borne by the nasal cavity without great secretion. Another circumstance favoring the application of stronger solutions is the ready manner in which the healthy service of the nose defends itself against irritating, chemically-impinging substances by means of a copious flow of mucus. Excoriated or ulcerated parts lack this power of rapid secretion; and hence they are affected by medicinal solutions much more than the healthy parts of the surface of the nasal cavity. What is here stated is the general result of experience and experiment; but, at the same time I must insist that the application of medicinal solutions in each case should be begun with the greatest caution, as individuals differ greatly in point of irritability of the nasal cavity. In the beginning, therefore, very dilute solutions of medicinal substances should be used, and their strength be increased gradually, after their effect has been well exhausted, by the use of greater quantities, applied by a quick flow, or the use of smaller quantities in a slow current distributed over a longer time of contact.

Solution of alum. — Half an ounce of roughly-powdered crystalized alum is dissolved in a small quantity of hot water, and the solution made up to one quart by means of cold and tepid water in such a manner as to ensure that the temperature of the solution should be below, but near to, blood-heat. In superficial ulceration or blenorrhagic conditions this solution is well borne. Ulcerated parts, which before its application were red, mostly appear as white patches after its application, thus showing that the effect of the alum on the ulcerated surface has been considerable. When I was desirous to manage with smaller quantities of solutions, I have sometimes mixed a little permanganate solution with that of alum.

Solution of sulphate of zinc. — From a scruple to a drachm of the sulphate of zinc, dissolved in a quart of warm water, together with half an ounce or an ounce of sulphate of soda or sulphate of magnesia, gives a suitable fluid.

Solution of sulphate of copper. — Of this sulphate also from a scruple to a drachm, mixed with half an ounce or an ounce of soda sulphate or magnesia sulphate, can be dissolved in a quart of warm water.

Solution of acetate of lead. — Of this crystalized acetate from a drachm to two drachms, together with half an ounce or an ounce of crystalized acetate of soda, may be dissolved in a quart of warm water.

Solution of nitrate of silver. — Of this salt not more than from half a grain to a grain should be dissolved in each ounce of water. A quart of water, therefore, in which previously from half an ounce to an ounce of nitrate of soda has been dissolved, may receive from sixteen to thirty-two grains of the nitrate. In particular cases the solution may be made stronger. The nitrate of potash is not so good as the nitrate of soda, because it has slightly irritating qualities. When it is necessary to use it in an emergency, when soda nitrate cannot be had, the solution should be more diluted.

Solution of bichloride of mercury. — The greatest caution is necessary in the use of this agent, as it has a tendency to produce excoriations on healthy surfaces. The first solution to be employed should be one containing fine grains of corrosive sublimate in a quart of water, in which an ounce of common salt is also dissolved.

Solution of chloride of calcium with suspended oxide or sub-oxide of mercury. — These fluids are the common phagedænic waters, or black and yellow wash, to which common salt has been added. Two drachms of calomel, twelve fluid ounces of lime-water, one ounce of common salt, and twenty ounces of warm water, yield the black solution. One scruple of corrosive sublimate, one ounce of common salt, twelve fluid ounces of lime-water, and twenty fluid ounces of common warm water, yield the yellow wash. These mixtures must be well agitated in the glass vessel while being allowed to run through the nasal cavity.

Sedative solutions. Of prussic acid forty minims to the quart of warm salt water, of tincture of opium two drachms, may be taken. These drugs may be added to some of the above solutions of metallic salts. But if this is desired, it is better to substitute a solution of morphia for tincture of opium. The Prussic acid is incompatible with the copper, silver, and precipitated mercury solutions; it goes conveniently with the alum and common salt solutions.

Styptic or hæmostatic solutions. — Amongst these, ice-cold salt water, containing an ounce of salt to a pint of ice-water, takes the first place. When this, after having been continued for a considerable time, is insufficient to stop the hæmorrhage, a fluid ounce of the tincture of the sesquichloride of iron may be added to each pint of ice-cold salt water.

Stimulating solutions. — One ounce of eau de Cologne upon ten ounces of salt-water, is a useful stimulant. Strong spirit of wine may be taken in place of the eau de Cologne.

I have now fully, and for some readers, perhaps, somewhat too explicitly described a number of medicinal solutions which may with advantage be applied to the treatment of nasal diseases by the method in question. I was desirous to impress upon the memory of the reader the fact that I recommend only such solutions as are brought up to a certain specific gravity by salts which do not decompose the medicinal agents. There may be cases in which it is desirable to swell the Schneiderian membrane by watery fluid and produce endosmosis, and others in which highly concentrated solutions may beneficially be used to effect exosmosis and shrivel Schneider's membrane. These adaptations, and the various accommodations of the fluids and their degrees of concentration, I must leave to the skill and ingenuity of those who make use of this method. They will also probably multiply the resources of the rhino-therapeutic pharmacy, and thereby add to the success and certainty of this interesting method of treatment.

DESCRIPTION OF APPARATUS FOR TREATMENT OF

DISEASES OF THE THROAT AND LUNGS

BY MEANS OF ATOMIZED MEDICATED LIQUIDS.

EACH OF THE APPARATUSES IS PACKED FOR TRANSPORTATION, AND FURNISHED WITH DIRECTIONS FOR USING.

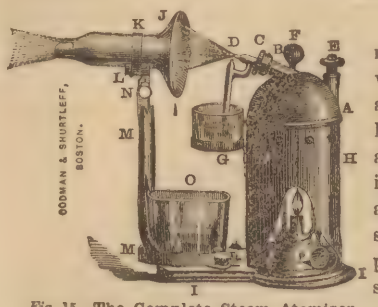


Fig. 15. **The Complete Steam Atomizer.** *For Inhalation, &c.*
Patented Mar. 24, 1868, and Mar. 16, 1869.

Fig. 15. ***The Complete Steam Atomizer.*** The name *complete* is used in connection with this apparatus with particular reference to the *quality of its performance*, as under no circumstances does it throw out little jets of hot water to frighten or scald the patient. The word is also appropriate when used to describe the apparatus itself, as it is the result of much care in arrangement, and of expense in the machinery employed for its construction. On account of its convenience, durability, portability, compactness, and cheapness (in the best sense of the word), we think it adapted to come into almost universal use by physicians for their patients, and by patients at their homes.

It consists of the sphere-shaped brass boiler *A*, steam outlet tube *B*, with packing-box *C*, formed to receive rubber packing, through which the atomizing tube *D* passes, steam tight, and by means of which tubes of various sizes may be tightly held against any force of steam by screwing down its cover while the packing is warm; the safety-valve *E*, capable of graduation for high or low pressure by the spring and screw in its top, the non-conducting handle *F*, by which the boiler may be lifted while hot, the medicament-cup and cup-holder *G*, the support *H*, base *I I*, the glass face-shield *J*, with oval mouth-piece connected by the elastic band *K* with the cradle *L*, whose slotted staff passes into a slot in the shield-stand *M M*, where it may be fixed at any height or angle required by the milled screw *N*.

The shield-stand is formed into a handle just above the waste-cup *O*, and its base is formed to receive and hold this cup. It has also a sliding arrangement and set-screw, by which it may be fixed any desired distance from the atomizing tubes.

The boiler is supplied with water through the opening into which the safety-valve is screwed.

All of its joints are *hard soldered* and cannot be separated by any heat short of redness or any pressure attainable with the lamp. Every one is carefully tested to a pressure of more than one hundred pounds to the square inch, and no accident can happen to frighten the patient or injure the apparatus, should the water in the boiler become entirely exhausted.

The spirit-lamp *P* is of brass, and is provided with means of graduating the flame, and with an extinguisher.

The waste-cup, medicament-cup, and lamp, are held in their places in such a manner that they cannot fall out when the apparatus is carried or used over a bed or otherwise. The apparatus is contained in a box 7½ x 4 x 8 inches; it can be carried from place to place by the practitioner without removing the atomizing tubes or the water; it can be unpacked and put in position for use in one minute, and repacked in the box in as short a time.

Price of this Apparatus, as represented in the cut, including two Glass Atomizing Tubes, extra packings, and Shield Band $6.00

*The same, with all the brass parts,—i. e., the Boiler, Shield Stand, Lamp, and their attachments, Nickel-plated,—thereby giving the Apparatus an exceedingly neat and pleasing appearance 8.50

Either of the above in neatly made, strong, Black Walnut box, with handle, additional . . 2.50

Extra Face Shields, any size, including Elastic Band, each 50

Glass Atomizing Tubes, each, 25 cts.; Silver do., $2.00; Silver and Platinum, ... 4.00

* See note at foot of page 19 in regard to Nickel Plating.

The Complete Steam Atomizer, large, apparatus No. 46, intended for use of hospitals and for office use of physicians requiring the almost constant use of the Atomizer.

The boiler will contain twenty-six ounces of water, or enough for four to six hours of constant use. This apparatus has the same parts and details as the preceding, and is made with the same care and thoroughness. It is contained in a box 12 x 6½ x 11 inches.

Price, including two Glass Atomizing Tubes, and extra packings $15.00
Extra Face Shields, including brass band 1.00
Glass Atomizing Tubes, . . each 25 cents; Silver, $2.00; Silver and Platinum, ... 4.00
*Apparatus No. 46, Nickel-plated, as described in connection with No. 15 . . . . . 20.00

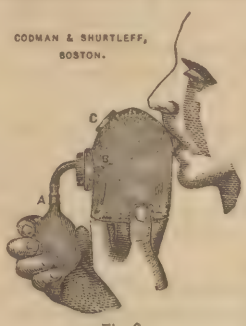


Fig. 2.

Fig. 2 represents ***Dr. H. K. Oliver's Hand Instrument,*** as described in a paper on Atomization, contributed by him to the "Boston Medical and Surgical Journal" of March 8, 1866. A, Elastic Bulb with Valves, serving as a bellows to produce the spray within the jar. B, The Bergson Atomizing Tubes, the upright arm being formed in part by a rubber tube, which dips into the medicament placed in the bottom of the jar. C, Opening for the admission of air.

In this instrument the receptacle for the medicament and the shield for the protection of the face are united in one piece, while the spray is rendered exceedingly fine by being thrown forcibly against the side of the jar.

Price, with two Atomizing Tubes, $4.00. Price of Atomizing Tubes alone, 50 cents each. With Double Bulbs, instead of a Single one, $5.50.

Fig. 3.

Fig. 3, ***Clarke's Atomizer.*** This Apparatus is essentially the same in form as that of Dr. Andrew Clarke, of England, but of improved construction. It consists of the Elastic Bulb F, which, with its valves, serves to force air into the Elastic Chamber G, which, alternately expanding and contracting, supplies a steady stream of air to the Atomizing Tubes I, one branch of which dips into the vial containing the medicament. The stopper is of elastic rubber (patented), and fits perfectly the atomizing tubes and the vial. In addition to its other uses, this instrument constitutes a perfect Douche for bathing and making medicinal applications to burns, sensitive eyes, inflamed surfaces, painful sores, and for perfuming or disinfecting the sick-room.

Price with two Glass Atomizing Tubes, $4.00. For other Tubes, see *Fig.* 47, page 19.

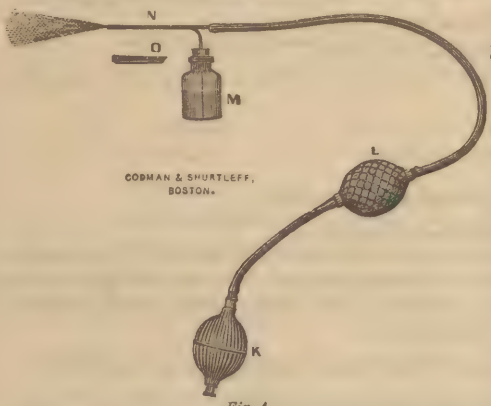


Fig. 4.

Fig. 4. ***Freezing Apparatus*** *for producing Local Anæsthesia.*

This form of apparatus — similar to that represented in *Fig.* 3. with exception of Atomizing Tubes, which are of metal, — is all that is required for producing Local Anæsthesia by freezing with Ether, as employed by Dr. Richardson, of London, or with Rhigolene, as described by Dr. H. J. Bigelow, of Boston, in the "Boston Medical and Surgical Journal" of April 19, 1866.

The Metallic Tubes which accompany this Apparatus are equally efficient for inhaling purposes, except for liquids liable to be vitiated by contact with metal, for which

* See note at foot of page 19 in regard to Nickel Plating.

glass or silver, or silver and platinum tubes should be used. Price of Apparatus, with Nickel-plated Freezing Tubes, $5.00. Price, with two Glass Bergson Atomizing Tubes, and vial (fitted), thus combining in one the two apparatus for freezing and atomizing, represented in *Figs.* 3 and 4, $6.00. Price of Nickel-Plated Freezing Tubes alone, $2.00.

Rhigolene, of best quality, in strong 12-ounce bottles, per bottle, $1.00.

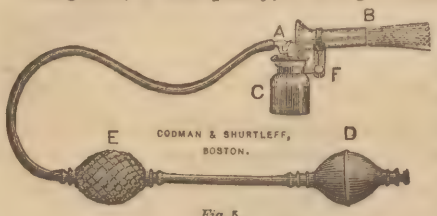


Fig. 5.

Fig. 5 represents ***Shurtleff's Atomizing Apparatus,*** (patented). It is similar to Dr. Clarke's (*Fig.* 3), but has the shield B in addition. When used for inhalation the end of the shield is taken into the mouth, and serves both to protect the face and to depress the tongue, so that a direct and powerful current of spray may reach the throat.

For making external applications the shield may be used to direct the spray upon a small surface only, or it may be disconnected, and the apparatus used without it.

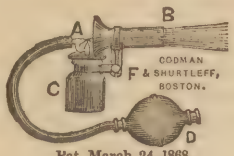
As all superfluous spray is turned to liquid by striking the inner walls of the shield, and is returned again to the vial by a suitably-formed orifice through the rubber stopper, this apparatus is very economical of the medicament, — a matter of some importance, when expensive liquids are employed.

Extra shields of uniform or of various sizes will be furnished, if required, and can be connected with the other part of the apparatus without loss of time by passing them into the elastic rubber band which secures them to the upright standard,

At F is a joint controlled by a thumb-screw, on which the shield swings when the vial is filled or emptied.

Price, with two Glass Atomizing Tubes, $4.00. For other Tubes to fit this Atomizer, see *Fig.* 47, page 19.

Fig. 22. *The Boston Atomizer.*



Pat. March 24, 1868.

This Atomizer differs from Shurtleff's in being without the Air-Chamber Bulb, and on that account affords an intermitting instead of constant flow of spray. It is made of as good materials as the former apparatus, and will be found very convenient for most of its uses.

Price, with two Glass Atomizing Tubes, ... $2.50.
For other Tubes, see *Fig.* 47, page 19.

The Tremont Atomizer, Apparatus No. 23,

Differs from the "Boston" in being without the Shield.

Price, with two Glass Atomizing Tubes, ... $2.00

The Universal Atomizer. Apparatus No. 24.

Similar to Apparatus No. 23. Supplied with one unplated Metallic Tube, with Regulator instead of Glass Tubes.

Price, ... $1.50
With Plated instead of Unplated Tube 1.75

Fig. 25. *The Constant Atomizer.*

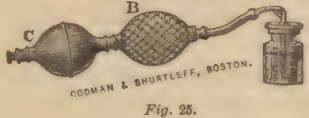


Fig. 25.

For same use as Apparatus No. 8, page 17. Has linen instead of silk net, and is supplied with one unplated metallic Tube, with Regulator, price, $3.00. With plated instead of unplated Tube, $3.25.

For other Tubes adapted to the Bulbs, see pages 19, 20.

*NOTE.— Experience during the time in which Rhigolene and Ether have both been used for Local Anæsthesia, seems to have decided that Rhigolene is preferable to Ether, as being much quicker in action and more economical on account of lesser first cost, and smaller quantity required.

Fig. 56.

Fig. 56. ***The Perfume Atomizer,*** Patented May 2, 1871. This compact and pleasing apparatus is intended particularly for diffusing perfume and disinfectants. It is well adapted for Inhalations also. It may be conveniently held in one hand. The metal parts are nickel plated.

Price, ... $1.50
Per Mail, ... 1.80

The rubber of all the Atomizers is white and of the best quality. The Air-Chamber or Reservoir Bulbs are covered with a netting of silk to prevent undue expansion, and to give the Chamber such rigidity as to afford a powerful current of spray. The valves are of a material and form to render them uniform and perfect in action in all positions, and each one is carefully fitted to its seat.

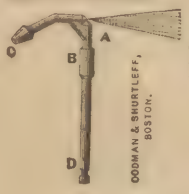


Fig. 47. ***Atomizing Tube, No. 47,*** adapted to Apparatus Nos. 3, 5, 22, 23, 24, 25, and to all the Bulbs.

Price, Glass, without Regulator, ... $ .25
Metal, Nickel-plated, with Regulator, ...75
" not plated, " " 50
When of Silver, with Regulator, ... 2.00
" " " and Platinum with Regulator, ... 4.00

Tubes adapted to all Bulbs of our manufacture.

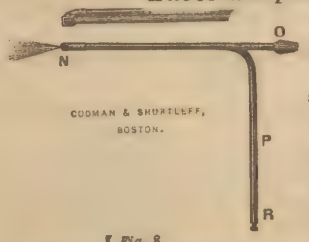


Fig. 8.

O and F (*Figs.* 8 and 9), conical end of air Tube for connecting with the rubber Tube of the Bulbs.

R and G (*Figs.* 8 and 9), Regulator (patented) for controlling the quantity and quality of the spray.

Fig. 8. The *Nickel*-plated Freezing Tube* usually furnished with the Apparatus, *Fig.* 4. Price, with Regulator, $2.00; when of Silver, $4.00; and when of Glass without Regulator, $1.00.

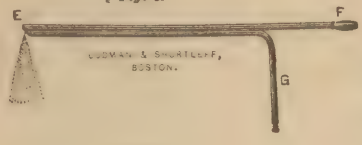


Fig. 9.

Fig. 9. *Metal Tube,* for throwing spray downwards into the larynx, or, when inverted, upwards into the posterior nares. It is also well adapted to freezing.

Price, Nickel-plated, with Regulator, $2.00; when of Silver, with Regulator, $5.00; when of Silver and Platinum, with Regulator, $12.00.

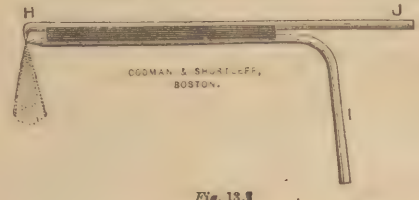


Fig. 13.

Fig. 13. *Glass Tube,* for throwing spray downwards into the larynx, or when inverted, upwards into the posterior nares.

Price, without regulator, ... $1.00

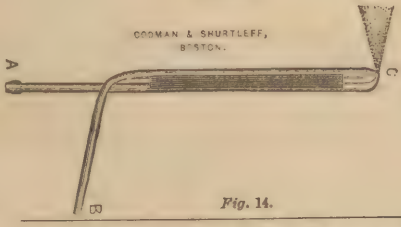


Fig. 14.

Figure 14. *Glass Tube,* for throwing spray upwards through the posterior nares.

Price, without Regulator, ... $1.00

* *Nickel Plating.*—For the last two years we have been making use of Nickel Plating for Atomizing Tubes, and for many other instruments. It does not tarnish from presence of rubber, like Silver Plating, is easily kept bright, is elegant in appearance, and very durable.

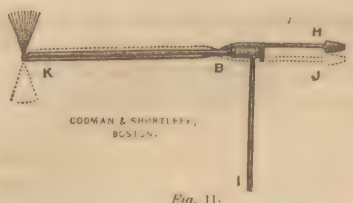


Fig. 11.

Fig. 11 represents a very useful (patented) modification of the tube *Fig.* 9. By means of a nicely-made joint at B, the horizontal part may be turned to throw spray up or down, or in any direction at a right angle to the body of the tube, — the induction end of the liquid-bearing tube being always downwards. It is particularly adapted to use in the throat, as the spray may be readily directed, either into the larynx or posterior nares. When *Fig.* 9 is used for the posterior nares, it is first charged with liquid and then inverted, and the operator is restricted to the use of as much liquid only as the tube will contain; while with that represented in *Fig.* 11 the current of spray may be continued as long as desirable in any direction. This quality renders it in some cases superior to other tubes for Local Anæsthesia.

Price, Nickel-plated, with Regulator, $3.00; Silver, with Regulator, $6.00; Silver and Platinum, with Regulator, $15.00.

Fig. 12.

Fig. 12. ***Reversible Bifurcated Tube,*** with joint as described in connection with *Fig.* 11, designed to throw Atomized Rhigolene on both sides of the gum at the same moment. This Tube is used for Local Anæsthesia in Teeth Extraction, painless removal of Dental Pulp, obtunding sensibility of Dentine in excavating cavities, &c. For testimony in regard to the value of the Apparatus for Dental use, see pages, 22 and 23.

Price, Nickel-plated, with Regulator, $5.00.

No. 18. ***Double Spray Tube,*** for throwing spray into both eyes at the same time. Nickel-plated, with Regulator, $3.00.

No. 19. ***Double Spray Tube,*** for both nostrils, Nickel-plated, with Regulator, $3 00.

To all the Metal Tubes, adapted to the Bulbs, we have attached a Regulator (patented), which, without materially increasing the cost, adds greatly to their value, as it enables the operator to secure such an amount of liquid as will freeze in the least possible time when the Tubes are used for Local Anæsthesia, and will afford the finest spray when used for inhalation. It is also very useful in preventing the passage of foreign substances into the Tubes. Many Silver and other Metallic Tubes are so made as to be nearly worthless on account of the manner in which the orifices are formed, and of the unsubstantial method of joining the two branches. Those of our manufacture have orifices formed in solid metal turned and drilled in a lathe, and the two branches are soldered firmly together in immediate contact, or connected by double braces for those formed on a right angle. Those described as Silver, or as Silver and Platinum, are made in the same manner; the latter have both Nozzles and the liquid-bearing Tube of Platinum, and are therefore not liable to be acted upon by any liquid. All our Glass Tubes are well annealed and remarkably strong. The two branches are so united that they cannot possibly get into a wrong position relatively to each other, and therefore always work well in the hands of the most unskilled.

☞ We will make to order Atomizing Tubes of any description from any material desired. Drawings should accompany the order.

By consulting pp. 19 and 20 physicians may select Tubes and Bulbs for special wants. The Bulbs are also very useful as Inflators for Pessaries, Barnes' Dilators, and for other purposes. For extensive operations, we make a large Freezing Apparatus with compound jets, which we will describe, if desired, by letter.

PRICES OF BULBS.

Those presented in *Figs.* 3, 4, 5,	. . . . .	$3.00
" " 22, 23,	. . . . .	1.00
" " 25,	. . . . .	2.50

DESCRIPTION OF APPARATUS FOR TREATING

DISEASES OF NASAL PASSAGES,

BY THE METHOD OF DR. THUDICHUM.

Each of the Nasal Douches is packed for transportation and accompanied with directions for using. They are made of best materials only, and will be found far superior to the many imitations which have been made.

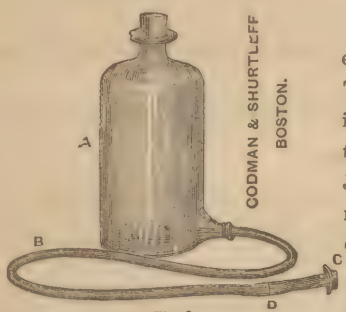


Fig. 6.

Fig. 6. *Nasal Douche*, or Apparatus for treating diseases of the Nasal Cavity, by the method of Professor THUDICHUM. A, Reservoir, to contain one quart. B, Leading Tube. C, Nozzle, fitting the nostril in such a manner that liquid cannot pass outward, nor air into the nostril. D, Joint formed by inserting a short glass Tube within the rubber tubing, at which Nozzles of different sizes, or for different patients, may be connected without loss of time.

Price with two Nozzles, $2.00; extra Nozzles, each, 25 cents.

Nasal Douche, same construction as *Fig.* 6, to contain one pint. Price, with two Nozzles, $1.75; extra Nozzles, each, 25 cents.

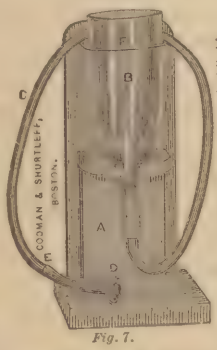


Fig. 7.

Fig. 7. Dr. Oliver's form of Apparatus for *Nasal Douche*, designed for office use. A, Black Walnut Stand. B, Conical Reservoir. C, Leading Tube. D, Nozzle. E, Joint. F, Ring, hinged to Stand, to support the Reservoir.

Price, with two Nozzles, $3.50; extra Nozzles, any size, each, 25 cents.

In using either kind of Douche described, the Reservoir is placed higher than the head, and the rubber Tube is grasped near the Nozzle, between the thumb and finger, so as to control the current. The Nozzle is then depressed enough to allow a little of the liquid to escape, thereby expelling air from the Tube. It is then pressed gently into the nostril, and the grasp slightly relaxed, when the current will enter and fill the whole cavity of the nose and escape by the opposite nostril, the head at this time being thrown slightly forward over a basin, and the mouth kept open.

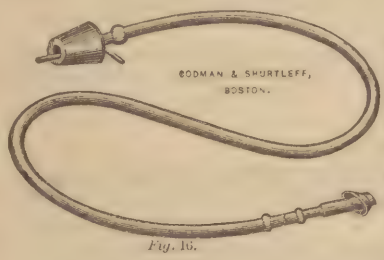


Fig. 16.

Fig. 16. *Allen's Nasal Douche.* Instead of the reservoir furnished with other forms of Douche, this has a stopper, so made that when inserted into a bottle of suitable size, such as can be found in every house, and the bottle inverted, the liquid will pass down the tube, while air enters through another smaller tube in such a way as to form no interruption to the egress of the liquid.

On account of its cheapness and portability, it will be found a desirable form of the Douche.

Price, with 24-inch tube and one nozzle of best form, $1.20; with 36-inch tube, $1.50.

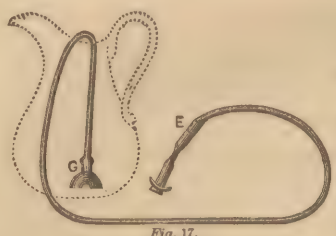


Fig. 17.

Fig. 17. *Traveller's Nasal Douche.* A convenient form of Douche for persons travelling. It may be used with the water pitcher of the sleeping apartment.

To start the current, put the weight and about half the rubber tube with it into the liquid; close the tube near the liquid by pinching it between the thumb and finger and withdraw it downwards, leaving the weight at the bottom of the pitcher. The liquid will flow through the Syphon thus formed, and the Douche may be used as described in connection with *Fig.* 7.

The Douche is supplied with two nozzles, and contained in a convenient box. Price, $2.00; Extra nozzles, each, 25 cents.

The following will be found very useful as attachments to the Nasal Douche of either kind; viz.,—

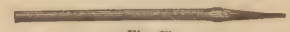


Fig. 20.

Fig. 20. Dr. E. H. Clarke's *Ear Tube*, forming an admirable Douche for cleansing the Ear, or for applying medicated liquids. Price, Hard Rubber, including six inches rubber tubing, 50 cents; Glass, including six inches rubber tubing, 30 cents.


Fig. 21.

Fig. 21. An attachment for showering the Eye. It is made of metal and gives quite a number of very fine jets. Price, with twelve inches rubber tubing, 75 cents.

The above attachments may be connected with the Douche Tubes at the joints D or E instead of the usual nozzle, and will be found useful by every physician.

We also make little Stop-cocks of hard rubber, which are thought by some to add to the value of the Douche. If required, they are inserted in the Tube at the joints D or E. Price, additional, $1.75.

It will be noticed that the Nasal Douches, represented in the cuts, though differing in detail from those described by Prof. THUDICHUM, are the same in principle. Though very simple, and comparatively inexpensive, we know, both from observation and report, that they answer perfectly the purpose intended.

Directions for using accompany each of the different forms of Douche Apparatus.

OPINIONS OF PHYSICIANS AND SURGEONS.

BOSTON, May 2, 1866.

GENTLEMEN,— I have used the three kinds of Apparatus for Nebulizing, prepared by you, and I have found them perfectly safe in their arrangements, and useful for throat and lung complaints.

Yours, respectfully, H. I. BOWDITCH.

18 ARLINGTON ST., BOSTON, May 11, 1866.

MESSRS. CODMAN & SHURTLEFF: *Gentlemen*,—Your Steam Atomizing Apparatus furnishes an easy and valuable method of making local application to the fauces, larynx, and lungs.

EDW. H. CLARKE.

The following is an extract from a note from Dr. HENRY J. BIGELOW:—

"I have thus far found nothing better for freezing with Rhigolene than the tubes made by you after the pattern I gave you, and which I still use with your other apparatus."

BOSTON, May 16, 1866.

MESSRS. CODMAN & SHURTLEFF: *Gentlemen*,—Your Apparatus for Atomization of Liquids seems to have been carefully made, and I think it an efficient one where required for treatment of diseases of the Throat and Lungs. The Apparatus for Local Anæsthesia which you made for me answers the purpose perfectly.

I am, very truly, your obedient servant, J. MASON WARREN.

"I have just had occasion to use one of your Apparatus for Local Anæsthesia, and it acted like magic. It is just the thing for Minor Surgery."

APRIL 29, 1867.

"I have thoroughly tested the Narcotic Spray Apparatus you sent me on trial, and believe it to be the best of any I have seen."

"I have been using one of your Steam Apparatus for about a year, and find it perfectly adapted for treating all diseases of the Throat and Lungs."

GALVESTON, Texas, Sept. 27, 1867.

"GENTLEMEN,— I see that the impression prevails that Rhigolene is not suited to a warm climate, because it is *thought* that it boils at a temperature of 70 degrees F.

"The article which you sent me in January, and of which I have a small quantity remaining, I know has been subjected to 90 degrees, and often more, this summer, yet it has not lost in the least any of its efficiency.

"It produces congelation of the tissues where applied, almost instantly, and with an exceedingly small quantity. I am delighted with it, as well as the excellent apparatus of Dr. Bigelow. It robs minor operations of all their terrors, entirely preventing pain; and this is a great consideration in an operation.

"I have ventured to freeze parts where the vitality is low, and never yet have I experienced the slightest trouble as to any secondary effects."

* "It seems to me a singularly convenient and useful one."

* "In completeness, elegance, and adaptability to the purpose for which it is designed, it is, I think, superior to any other 'Steamer' in use."

* "The little apparatus is the most complete for its price than any that have yet been manufactured, and the retail price so low that expense is no longer an impediment to its employment by patients."

From *Philadelphia Medical and Surgical Reporter* of Nov. 28th, 1868:—

* "Our Boston friends, Messrs. CODMAN & SHURTLEFF, have favored us with another modification of their model atomizer, and we must say that it is an elegant Instrument, and sufficiently cheap to bring it within the reach of every practising physician in the country; and their energy in this direction, in popularizing such useful apparatus deserves commendation."

From *Boston Medical and Surgical Journal* of Nov. 26th, 1868:—

* "We have received from the makers, Messrs. CODMAN & SHURTLEFF, a new instrument for using atomized fluids, which appears to be very complete, simple and durable.

"The inventors claim that it cannot explode, unsolder, nor throw hot water jets instead of vapor.

"If its future use warrants the expectations its appearance would lead us to form of it, it will prove very popular and very useful.

"For its thorough work and durability the price is very reasonable."

* "Its operation is complete and satisfactory, and the ingenuity and artistic skill displayed in the design and manufacture is a success truly."

* "I have not seen anything, either in workmanship or convenience, which surpasses it, and shall take great pleasure in recommending it as an admirable instrument."

* "It seems to be as near perfect as such a machine can be, and I have no doubt will be much sought for by the profession."

From the *New England Medical Gazette* of January, 1869:

"The 'Complete Steam Atomizer,' as arranged by CODMAN & SHURTLEFF, seems the ultimatum of convenience, durability, portability, and compactness for the purpose intended; and as to cheapness, we do not see how so perfect and extensive a piece of machinery can be made for six dollars.

"Wherever frequent and continued medical inhalation is employed, this apparatus is invaluable.

"Their Hand Atomizer, for local applications, is one which no physician should be without."

* "It is the best constructed apparatus of the kind I have examined.

"Your efforts in the practical atomization of remedies, are largely advancing this valuable means of treatment."

MASSACHUSETTS GENERAL HOSPITAL,

BOSTON, February 15, 1869.

CODMAN & SHURTLEFF'S Complete Steam Atomizer has been used in the wards of the Massachusetts General Hospital since its introduction. It is perfectly simple in its construction, yet substantial, compact, and safe. It atomizes steadily and completely, and gives entire satisfaction.

BENJ. S. SHAW, M. D.,

Resident Physician and Superintendent.

---

* The Complete Steam Atomizer.

Besides the foregoing testimonials, nearly all of which are from distinguished medical gentlemen, we have received others of the same purport, to the number of hundreds, or perhaps thousands; while we have never heard of an instance in which a Steam Atomizer of our manufacture has burst. Indeed, we know that such an accident is impossible with any Steam Atomizer ever made by us.

OPINIONS OF DENTISTS,

Who have used the Freezing Apparatus for their branch of Surgery.

The Apparatus for Dentists' use was referred to by Dr. Stellwagen, at a meeting of the Pennsylvania Odontographic Society, reported on page 316 of *Dental Cosmos*, for January, 1867, as follows: —

"Dr. STELLWAGEN then exhibited a Spray producer, of American manufacture, having the Tubes for the liquid and the air distinct and separate, which he thought made a more perfect Spray than the English Instrument, and with less Ether.

"These Instruments have been employed with marked success in the Dental and Surgical Clinics of the Philadelphia Dental College."

"I received the instrument you sent, and it has proven all I could ask."

PHILADELPHIA, Jan. 24, 1867.

"Messrs. CODMAN & SHURTLEFF.—I inform you with pleasure that the Spray Apparatus of American manufacture, mentioned in the *Cosmos* of January, as brought before the Odontographic Society of this city, is of your manufacture, and has, within my own observation, been used by many with very happy results."

"It is very satisfactory. The Double Tube is much superior to one I saw from * * * I wish you would send me another."

"As I think I have given it a *fair* trial, I feel bound, in justice to its merits, and to my professional brethren, to add my testimony to its approval. The Tube which you let me have about two months ago (with regulating screw), I find to be an improvement."

"Your Apparatus for Local Anæsthesia, which we ordered some time ago, answers the purpose to our perfect satisfaction."

POSTAGE.

THE following will be sent by Mail, if so ordered, providing the amount necessary for prepayment of postage accompanies the order in addition to the price:

	Postage—Cents.
Apparatus, Fig. 3, complete	.87
Apparatus, Fig. 4, complete	.84
Combined Apparatus, Figs. 3 and 4, complete	105
Apparatus Fig. 5, complete	100
Apparatus No. 56	.80
One Glass, Silver, or Silver and Platinum Tubes, for Apparatuses Figs. 15, or 46	.09
Two Glass Tubes for Fig. 15, or 46	.12
One or two Glass Tubes for Fig. 2	.06
One Glass, Plated, Silver, or Silver and Platinum Tubes, for Figs. 3, 5, 22, 23, 24, 25, shown also in Fig. 47	.06
Two of either for the same	.09
Silver, Plated, or Silver and Platinum Tubes, for Fig. 4, (also shown in Fig. 8)	.12
Silver, Plated, or Silver and Platinum Tubes, Figs. 9 and 11	.12
Dental Tubes, Fig. 12	.15
One or two Nozzles for either kind of Douche, Figs. 6, 7, and 16	.06
Three or four Nozzles for either kind of Douche, Figs. 6, 7, and 16	.09

THE STORER SPECULUM.

THE accompanying cuts represent an important improvement upon any form of Speculum hitherto in use, lately devised by Prof. Horatio R. Storer, and exhibited by him to the Suffolk District Medical Society, on September 26th.

It will be seen that by a simple spring attachment at the side of the Cusco bivalve, (represented at A,) the blades may at once be disjointed, swung around back to back, and there fixed by a turn of the nut already existing upon the screw traversing the handles, with the effect of giving a retractor equal in working facilities to that of Sims'.

Dr. Storer's instrument is, in fact, a duplex one: as a speculum retaining the excellence of Cusco's instrument, and as a retractor better for ordinary purposes than the complicated and more expensive instruments of Emmet, Bozeman, Pallen and Bryant.

The history of the invention may be given in Dr. Storer's own language, when describing it to the Society.

"A year ago I was discussing with my assistant, Dr. Stone, the features of Dr. Thomas' Telescopic Speculum, and remarked to him that while I was averse to the unnecessary multiplication of instruments, I thought it possible to improve upon the best yet in use, which I considered Cusco's to be. Some six months afterwards I had occasion to remove stitches from the anterior vaginal wall, after an operation for vesical fistula, and happened to have no retractor with me. I therefore directed Dr. Stone to remove the screws connecting together the blades of Cusco's instrument, and by reversing their relative position I had at once the retractor that I desired. By subsequently attaching a movable spring peg in place of one of the screws, and rendering the other one a fixed point, immediate change from the speculum to the retractor, and back again, became possible by a slight touch of the finger."

This instrument (many of which have already been sold) is of our own manufacture; and from its combining the advantages of two separate and distinct mechanical principles, and thus making one instrument serve the purposes of two, will probably come into almost universal use. It has been styled by Dr. Storer the "Boston Speculum," but will doubtless be known by his own name. ***Price, $6.***

Dr. Storer's other instruments may also be obtained of us.

DR. E. CUTTER'S PESSARIES.

Vaginal portion of hard rubber, supported by a belt passing around the hips.

These pessaries have each the single posterior support, the hooked termination and joint. They differ from most pessaries in use, in that they distend the vagina always in its long diameter, never transversely, and therefore never interfere with the normal tonic contraction of its transverse fibres. Their fixed point, by means of the elastic suspension, is the sacrum, and not the vaginal or pelvis walls. The suspension imitates the natural elasticity of the normal uterine supports, and permits a limited degree of motion. The suspension cord runs in the furrow between the buttocks, which prevents lateral motion of the Pessary. Motion upwards is prevented by the post-utero vaginal cul de sac; downwards, by the suspension; forwards, by the cervix uteri; and backwards by the promontory of the sacrum.

The joint in the crook obviates the necessity of removing the belt, — permitting the tubing to be turned aside during defecation, at the same time serving as a handle, by means of which the vagina may be kept at its normal length, and the uterus in situ naturalis during the bearing-down efforts, which, under other circumstances, are likely to retrovert a replaced womb.

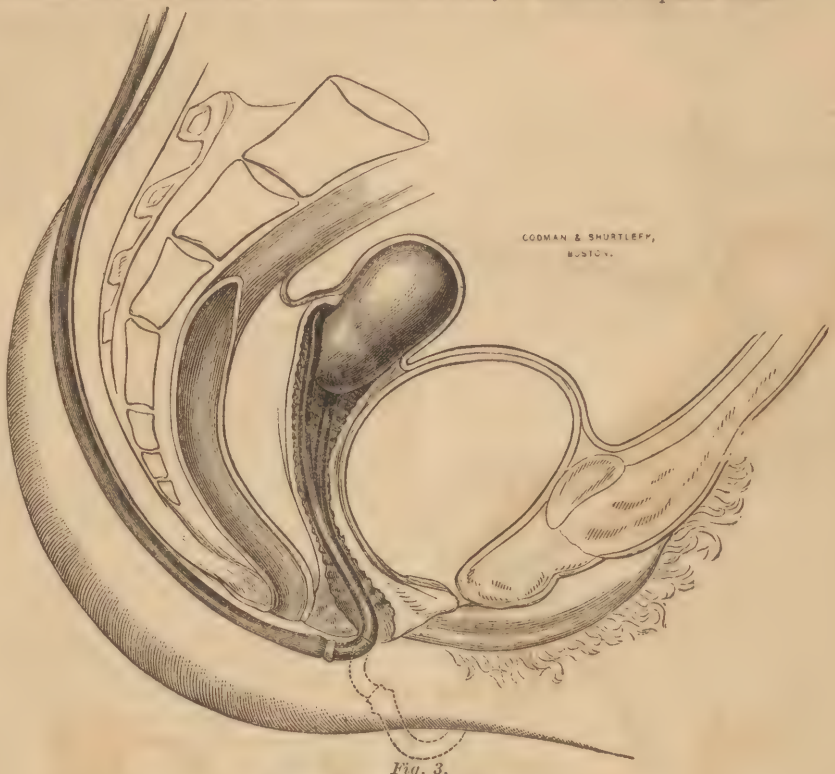


Fig. 3.

FOR RETROVERSION.

Loop Pessary.

No. 1.	5¾ inch, . . . each, $3.00	No. 3.	4½ inch, . . . each $3.00
" 2.	5 " . . . " 3.00	" 4.	4 " . . . " 3.00

Fig. 4.

T Pessary.

No. 1.	4 inch, ...	$3.00
" 2.	4½ "	3.00
" 3.	5 "	3.00

FOR ANTEVERSION.

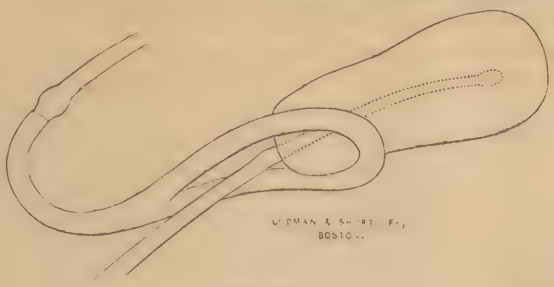


Fig. 13.

Loop Pessary.

No. 1.	$3\frac{1}{8}$ inch . .	$3.00
" 2.	$3\frac{5}{8}$ " . .	3.00
" 3.	4 " . .	3.00

Fig. 14.

T Pessary.

No. 1.	4 inch	$3.00
" 2.	$4\frac{1}{2}$ "	3.00
" 3.	5 "	3.00

FOR SIMPLE PROLAPSUS.

Fig. 19.

Ring Pessary.

No. 1.	$3\frac{1}{4}$ inch	$3.00
" 2.	$3\frac{1}{2}$ "	3.00
" 3.	$3\frac{3}{4}$ "	3.00

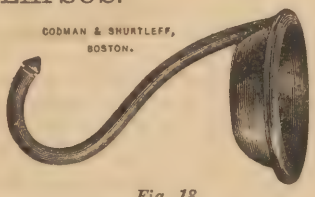


Fig. 18.

Cup Pessary.

No. 1.	$3\frac{1}{4}$ inch	$4.00
" 2.	$3\frac{1}{2}$ "	4.00
" 3.	$3\frac{3}{4}$ "	4.00

FOR FLEXIONS.

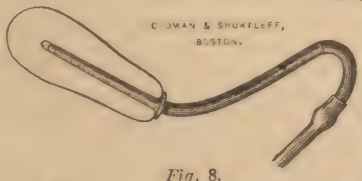


Fig. 8.

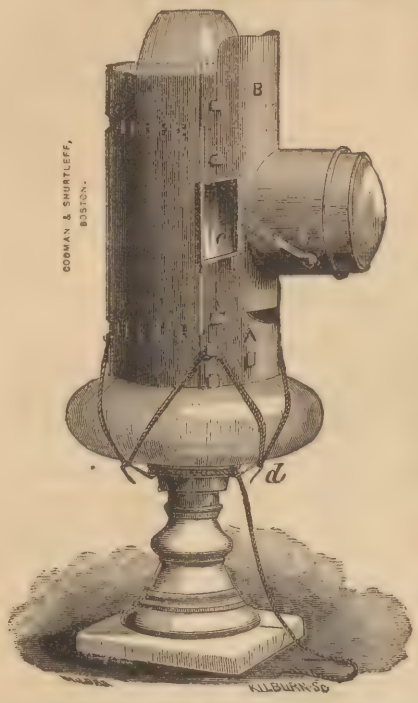
Stem Pessary.

No. 1.	Length of stem . . $1\frac{3}{4}$ inches	$3.00
" 2.	" " " . . 2 "	3.00
" 3.	" " " . . $2\frac{1}{4}$ "	3.00

For complete description of these pessaries and of Dr. CUTTER's instruments for vaginal mensuration see Monograph by Dr. Cutter, on Versions and Flexions, which we furnish at 50 cents each.

Laryngoscopic Lantern, or Light Concentrator.

Invented by Dr. H. K. Oliver.



This is, as far as we know, the only Laryngoscopic Lantern made in the United States, — those in use here being all imported from Europe. To nearly all of these instruments there is the objection that they are adapted to a particular kind of lamp or gas fixture. The invention of Dr. Oliver obviates this objection, — his Lantern being, by a number of very simple contrivances, easily fitted to any kind of lamp or fixture.

The want of a portable Light Concentrator, of universal adaptability, has been greatly felt by Laryngoscopists when called upon to examine cases away from their office. It has also, as we know from personal experience, obstructed the desirable extension of the study and practice of laryngoscopy, inasmuch as general practitioners and students have found it necessary, in order to provide themselves with a Light Concentrator, to purchase also the fixture or lamp to which it was attached.

Dr. Oliver's Instrument is designed for direct light, — a method preferred by many Laryngoscopists to reflected light. The lens, however, is of sufficient diameter for use with the frontal reflector, if thought desirable.

Auto-laryngoscopy being by general acknowledgment an important means of acquiring skill in the use of the laryngoscope, there is attached to the Lantern a small mirror, which by a very simple mechanism, has nearly all the movements usually afforded by the ball and socket joint.

This Light Concentrator will be found useful not only in laryngoscopy, but in the examination of the external ear.

In the same box in which the Lantern is packed, is a rack for three sizes of laryngeal mirrors, copied from the London mirrors imported by Dr. Oliver, with which they bear favorable comparison.

Description.— The Lantern is made up of three main portions, the front piece **A**, and two wings which hinge upon the front piece, and by which the diameter of the Lantern may be increased beyond the diameter of any of the glass chimneys in ordinary use. These wings may be locked together at the desired point, as at *a. a.* The height of the flame from the part of the lamp suited for a support of the Lantern varies considerably, of course, in different lamps and gas stands; and inasmuch as the lens must be on a level with the flame, the tube containing it is attached to a slide **B**, which, mooving in grooves, in the front main piece, may be raised or lowered, as found necessary. The lens is also movable within the tube, in order to admit of its being retained in its focal distance from the flame, when the diameter of the Lantern is changed. The movement is made by the sliding of a knob on each side (*b*) in an elongated opening in the tube. The Lantern is made firm upon the lamp by passing a bit of cord back and forth between the instrument itself and hooks (*d*), which are strung upon a cord tied around any suitable place in the lower part of the lamp. This arrangement is simple, extremely efficient, and universally practicable, — the latter point being difficult of attainment by any other mechanism. At *c* is seen the little mirror for use in auto-laryngoscopy.

Price, — Laryngoscopic Lantern	***$4.00***
Auto-Laryngoscopic Mirror, additional	***1.00***
Set of three Laryngoscopic Mirrors	***3.00***
All the above fitted in Case . . .	***$9.00***
Laryngeal Mirrors, separately, any size	***1.00***

☞ Concise rules for use furnished with each Instrument.

For full description of the Lantern and method of its employment, see article contributed to the *Boston Medical and Surgical Journal*, of October 8th, 1868, by Dr. Oliver.

AN ADDITION TO CAMMAN'S

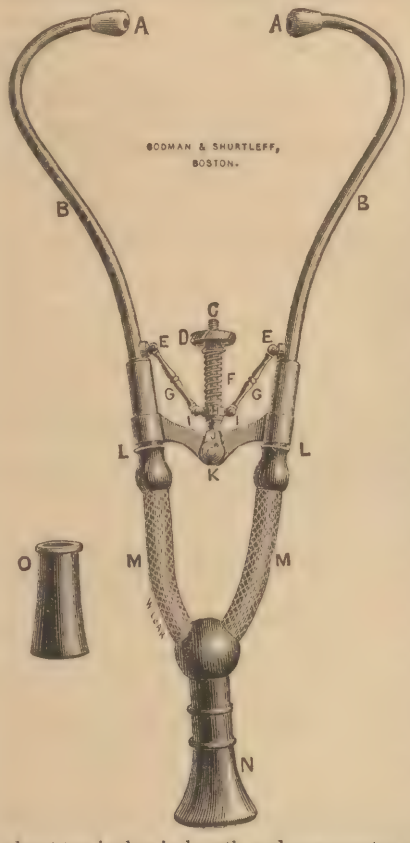
Double or Binaural Stethoscope,

Intented to regulate the amouut of pressure on the Ears.

[From the *Boston Medical and Surgical Journal* of April 29, 1869.]

MESSRS. EDITORS:—At the last meeting of the Suffolk District Society, I presented an addition to the double stethoscope. Accompanying this communication is a cut representing this instrument with the addition.

As the double stethoscope is very little used, even in this country, where it was invented, except by graduates of Harvard and Bellevue, and almost never, I believe, abroad,—convinced of its great superiority over the single instrument, I will briefly mention the reasons for this superiority, and then speak of the addition which has been recently made to the instrument.



Its advantages are:—

1. It greatly intensifies sound. Most of the single instruments simply conduct, a few slightly intensify them.

2. It is much more easily applied to the chest, and maintained in place,—a certain amount of knowledge of the art of balancing seeming almost necessary to manipulate the single instrument successfully.

3. We can keep our eyes upon the pectoral extremity, and thus be assured of its perfect adaptation, and prevent the friction of clothing, &c.

4. It excludes from the ear sounds not conducted by the instrument. The statement once made by Prof. Flint, that "in the conduction of thoracic sounds by Camman's Binaural Stethoscope, their quality and pitch were altered," has been since corrected by him, and he says that after further use of the instrument, he finds "the objection on this score without foundation;" and, he adds, "I am sure that this instrument will supplant all wooden stethoscopes as soon as it is fully appreciated. . . . . Some practice is requisite to realize its value; hence many reject it after an insufficient trial, when, had they continued to use it, they would have been after a while unwilling to give it up."

The instrument consists of a bell-shaped extremity N, made of ebony, one inch and a half in diameter to which are attached to elastic tubes M M, three inches long and one-half an inch in diameter, made of wire and covered with silk, which articulate at L L with two German silver tubes B B crossed, about ten inches in length and one-quarter of an inch diameter, which terminate in ivory or hard rubber tips A A, to fit into the ears.

The adaptation of these tips was formerly effected by a simple elastic band, passing about the tubes B B, these tubes being connected by arms meeting in a joint at K.

The only way in which the pressure on the ears could be varied, was by lengthening or shortening the elastic band, or by slipping it up and down on the tubes. The great inconvenience of this was particularly evident in my classes in auscultation, where the stethoscope was passed from one to another, and where not only were heads of all sizes, but where naturally much difference of opinion existed in regard to the amount of pressure desirable.

About a year ago I stated the difficulty to Moses G. Farmer, well known to our profession for his connection with the physiological experiments of Dr. Upham, in the case of M. Groux, and he immediately suggested the addition represented in the cut. C J represents a standard (so fixed as not to interfere with motion in the joint at K), the upper part of which is a screw. H represents a slide movable on this standard, F a spiral spring, and D a nut. G G represents two arms attached by simple box joints to the slide at I I, and to German silver tubes at E E.

It will be readily seen how the pressure of the tips A A upon the ears can be nicely regulated, by regulating the tension of the spiral spring F by turning the nut D.

O represents a smaller pectoral extremity, which can be used sometimes with advantage in localizing heart murmurs, or when the application of the larger one is difficult on account of emaciation of the patient or other cause, but ordinarily the larger one should always be used. The instrument, with and without the addition, is made in a superior manner by Messrs CODMAN & SHURTLEFF, 13 *and* 15 *Tremont Street.*

In closing I would strongly urge all who practice auscultation to use the double instrument, and would simply suggest that they be not dissuaded from its use by the *roaring* which will annoy them at first, but which they will soon disregard; that they never apply it over clothing except when absolutely necessary, and that they make inference from the results with great caution.

F. I. KNIGHT.

Price of Instrument as represented in cut $9.50

Price with Elastic Band instead of modification deecribed by Dr. Knight, $7.00

☞ These Stethoscopes are made in the best manner, the flexible portion being of the best English Silk Covered Tubing, the movement of which produces no sound of itself. They take apart at the joints L L, for the sake of greater compactness.

THE DOUGLASS PATENT ARTIFICIAL LIMBS.

We have been appointed agents for these very excellent Limbs, and will forward descriptive pamphlets on application.

BARNES' DRY SPIROMETER,

For Developing the Lungs, and for showing their capacity in cubic inches.

An air-tight flexible diaphragm is used to hold the air, rendering the instrument cheaper and more portable and durable than those in which water and weights are employed.

It is recommended by some of the most eminent physicians of Boston and New York. Price, $10.00.

APPARATUS

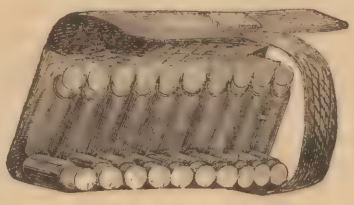
For the Manufacture and Administration of

NITROUS OXIDE, OR LAUGHING GAS,

For Anæsthesia during Surgical Operations.

We manufacture very complete Apparatus for this use. Price, $50.00. ☞ Cuts and full description on application.

POCKET MEDICINE CASES.



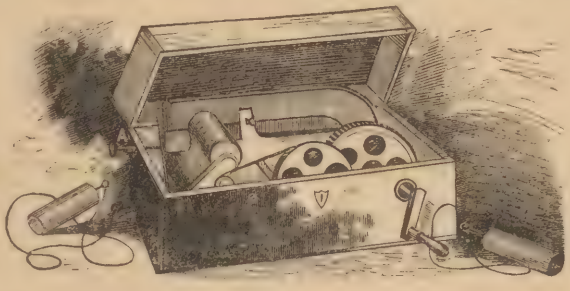
Pocket Medicine Cases, 16 vial, calf	$1.50
" " 16 " goat	2.00
" " 20 " "	2.50
" " 20 " calf	2.00
Other varieties, from	$1.25 to 3.75

MEDICINE TRUNKS.

Medicine Trunks, iron-bound, covered with russet leather, containing ½ oz., 1 oz., 2 oz., and 4 oz. glass-stoppered bottles.

Flat Trunks, 2, 5, and 5½ inches high	$5, $9, $11.50, $14, and $16.00
Square " 5, 7, " 9 " "	$6, $7, $12, $14, $18, " 20.00

MAGNETO ELECTRIC BATTERIES.



Magneto Electric Batteries (see cut), each $10.00

Amputating Instruments:—

"	sets, in Cases	$27.00 $31.00
"	and Trepanning, sets, in Cases	40.00 44.00
"	" General Operating, sets, in Cases	53.00 66.00
"	" " " " Parker's compact	98.00 108.00
"	Knives	$2.00, 3.00, 4.00, 5.00, 5.50
"	Catlines	2.00, 4.00, 5.00
"	Scalpels, ebony or ivory handle	1.50, 2.00
"	Saws, Satterlee's	5.00
"	" Metacarpal	1.25
"	Bone Forceps	2.50 to 6.00

Artery Forceps,	plain	1.00
" "	spring catch	1.50
" "	Mass. General Hospital, plain	2.25
" "	spring catch, fenestrated	2.00
" "	slide " "	2.50
" "	" " Dugar's	1.50
" "	Bigelow's	8.00
" "	small Bull Dog	.75
" "	spring catch, five teeth	1.75
" "	and Needle Forceps, combined	2.50
Bristle Probangs,	for removing obstructions from throat,	1.50
Crutches,	split shaft, with cross handle, per pair,	3.50
"	the same, with brass and rubber bottom " "	6.00
"	Whittemore's Patent, Maple " "	10 00
	Whittemore's Patent, Lancewood " "	13.00
	Whittemore's Patent, Rosewood " "	14.00
Crutch Bottoms,	brass, with rubbers to screw in " "	1.50
" "	same kind, extra size " "	2.50
" "	Whittemore's patent " "	3.00

Caustic Holders:—

Ebony, with silver clasp	each .75
" " platina "	$3.00, 3.50
" Double end, one for holding sponge, the other for solid caustic	2.50
Hard Rubber, two lengths	50, 75
Byford's Uterine, silver clasp, hard rubber case	2.00
Lente's Intra-Uterine; silver, $1.25; platina, $3.00	
" H. R. Storer's modification, hard rubber case	3.50
Miller's Intra-Uterine, concealed, silver with platina clasp	12.00
Lallemand's, for Urethra; silver holder, $5.00; platinum holder	7.00

Catheters and Bougies:—

French	each, .15
English	" .30
French Conical Bougies	" .75
" Olive tip "	" .85
" " " Catheters	" .90
" Conical "	" .85

Catheters,	silver, common curve	$1.50 to 2.75
" "	Prostatic curve	2.25 " 3.50
" "	combined, Male and Female	3.25
" "	" " " " Parker's	4.50
" "	any size and form made to order in a superior manner.	

Dissecting Cases and Instruments:—

French Dissecting Cases, Charriere's, consisting of 6 scalpels, chisel, chain and hooks, blowpipe, grooved director, probe, curved scissors, straight scissors, and dissecting forceps, contained in folding goat-skin case 10.00
contained in folding enamel leather case 9.00
" " " wood " 9.00

Dissecting Instruments, our own make, in wood cases, according to completeness . . . . . 6.00 to 10.00

Dissecting Scalpels, Charriere's 75
" " of our own make, ebony handles 75
" " ivory " . . . 1.00
" Chain and Hooks 62
" Blowpipe 50
" Scissors, straight 75
" " curved 1.00
" Forceps, plain 75
" " Coxeter's or Beach's 1.25

Drinking Tubes:—

Glass 25
Silver, self-fastening to tumbler 5.00

Ear Instruments:—

Hosmer's Ear Spout 38
Toynbee's " " 2.00
Weber's Ear Illuminator 10.00
Toynbee's " 12.00
Hassenstein's Ear " 5.00
Toynbee's Ear Forceps 1.50
Wilde's " " 1.50
Clarke's Polypus Snare 6.50
Kramer's Ear Speculum 2.50
Porcelain " " 50
Glass, reflecting Ear Speculum 75
Toynbee's " " three in case . . . 5.50
" " " single 2.00
Wilde's " " three in case, plated . . 3.00
" " " " " " silver . . . 4.50
Eustachian Catheter 2.00

Ear Mirrors:—

Troltsches reflecting mirrors, with handle, for examining the ear, four sizes, price, . . . $3.50, $4.00, $4.50, and 5.00
Mirrors, to mount upon head of operator, each, . . . 6.00
With handle and one magnifying lens in case 5.00

ELECTRO-MEDICAL APPARATUS,

*MANUFACTURED BY A. GAIFFE, PARIS.**

IMPORTED BY OURSELVES.

This Battery gives three Currents: 1st, The Extra Current; 2d, the Inductive Current; 3d, A Combination of the two.

Though the result of these currents may be the same physiologically, yet they present a series of increasing effects, which may be varied at will, beginning with a current so mild as scarcely to be perceptible, and being gradually increased to one of great intensity. The Battery is charged with the Bi-Sulphate of Mercury and Water, and gives rise to no odor. All its parts are perfectly adjusted, and do not readily get out of order. Extra "troughs" may be obtained at a small cost, thus enabling the physician to leave one with each patient whom he treats by Electricity. This arrangement also diminishes the weight of the apparatus. The whole machine is in the form of a case, 7½ inches long, 4 inches wide, and 1½ inches thick, weighing only 24 ounces, including therein the Electrodes, &c., contained in the case. Nothing protrudes from the exterior. It is, in fact, a pocket instrument, combining with compactness and durability, all the qualities of a superior Electro-Medical Apparatus.

PRICE OF THE BATTERY, including Conducting Cords, two Insulated Handles, a spherical and an olive-shaped Electrode, a Metallic Brush, and a bottle of Bi-Sulphate of Mercury, all contained in the case $15.00

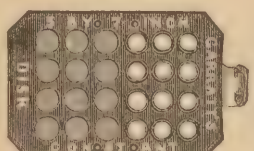
Extra Trough	2.75
Bi-Sulphate Mercury, per ounce	.20
Davis & Kidder's Magneto-Electric Machine	10.00
Dr. Jerome Kidder's Electro-Medical Apparatus	20.00 and 23.00

Insulated Sponge Holders; Cups for applying Electricity to the Eyes; Electrodes for the Rectum or Vagina, &c., &c.

DR. GARRATT'S*

SELF-ACTING AND CONSTANT

ELECTRIC DISKS.



Button Disk.

A Scientific Adjustment of sensitive Metals, insulated silver, with Magnesio-Iodi-Zinc. Composing an elegant Self-acting Medico-Electrique, that any person may apply and wear with comfort and relief; *for local weakness and pain, for old rheumatic and neuralgic pains, induration and stiffness.* It is also remarkable for its constant power to help weak lungs, heart, stomach, kidneys, lame back, and other aches and ails.

Circle Disk.

☞ Descriptive Circulars sent on application.

PRICE of either style $2.50

* Send for complete Descriptive Circular.

Forceps,	Bone	$2.50 to 6.00
"	Bullet	2.00
"	Bird Stuffing, 10, 12, and 14 inch	1.75 to 2.50
"	Needle, Beach's	10.00
"	" Bigelow's	12.00
"	Œsophagus, Bond's,	2.50
"	" Burge's	5.00
"	Tumor,	2.50, 2.75, 3.00, 3.25 and 3.50
"	Placenta. *See Obstetric Instruments.*	
"	Craniotomy. " " "	
"	Uterine. " *Uterine* "	
"	Polypus and Dressing	1.25 to 2.75
Finger Cots,	Light rubber	each, .10
" "	Heavy Rubber	" .12
Holt's Dilators,	Improved, in case,	per set, 20.00

ICE AND HOT WATER BAGS.

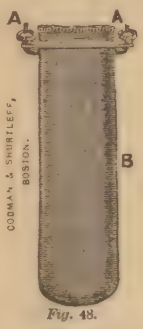


Fig. 48.

Fig. 48 represents a very convenient form of Bag for making dry, hot, or cold applications to any part of the body. The Bag B is of rubber, for the reception of hot or of ice water; the mouth is closed easily and securely by the brass clamp and screws with milled nuts A A.

The rubber is of best quality, and will last for many years. They are about three inches in width, the price varying with the length, viz.:

11 inches long	$2.20
13 " "	2.40
15 " "	2.60
17 " "	2.80
19 " "	3.00

☞ Bags of other sizes and forms made to order at short notice. Also, Dr. Chapman's Patent Ice and Hot-Water Bags, with separate compartments, each $5.00 to $10.00.

INSTRUMENTS TO ASSIST THE HEARING.

CONVERSATION TUBES AS PER CUT.

Silk covering, ordinary size		each, $5.00
Worsted " " "		" 3.00
Extra sizes		$6.50, 7.00, 8.50
Trumpets,	various patterns and sizes	$1.50 to 5.00
Auricles,	small, medium, large, either	per pair, 5.00

Knives, Corn . . . . . each, .50

Lancets, Shell Handles . . . . . " .50, .75

" " " French, Charriere's . . . " 1.00

" " " Evans', genuine . . . " 1.00

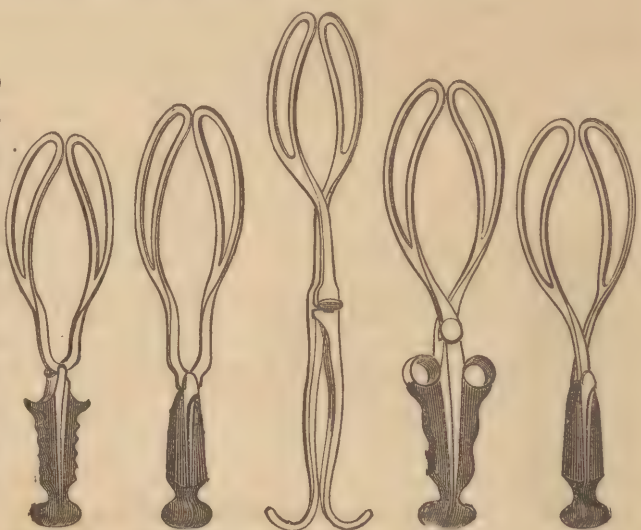
" " " Abscess . . . . . " 1.00

Otoscopes 2.50

Obstetric Instruments. See also Uterine.

FORCEPS.

Hodges . . . $8.00
Simpson's . . 8.00
" small 7.00
Bedford's . . 8.00
Elliot's . . . 9.00
Buzzell's . . 10.00
Beatty's . . . 7.50
Denman's . . 7.00
Meigs' . . . 7.50
Davis' . . . 7.50
Channing's . . 7.00
Comstock's . . 8.50



Simpson's. Channing's Hodges'. Bedford's. Denman's.

Ramsbotham's Forceps for Craniotomy 6.00

Meigs' " " " Straight and curved } . . . . . each, 3.50

Smellie's Perforator, ... 2.50

Nagele's " 4.00

Screw Perforator 3.50

Blunt Hook and Crochet 1.50

Vectis 2.50

Placenta Forceps 2.50

" " improved 3.00

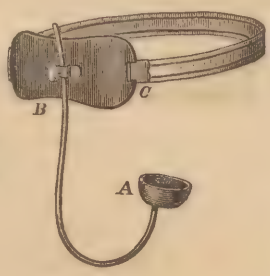
" Hook 1.25

Loomis's Ovum Forceps 6.00

Roll-up Cases for Obstetric Instruments 6.00

" " " " " made to order

DR. JAMES' UTERINE SUPPORTER.



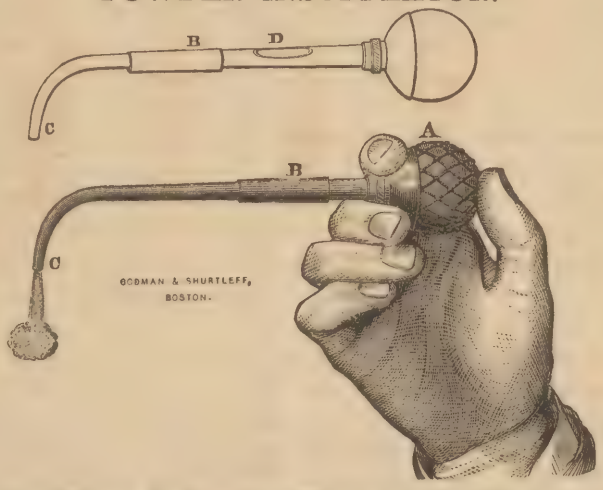
An approved instrument for holding the Prolapsed Uterus in situ naturali, without irritation or inconvenience in wearing. We make three sizes, the metal parts being nickel-plated, abdominal plate hard rubber, and the belt elastic webbing.

PRICE of either size, ... $6.00

Pessaries: —

Hodge's Open Lever	each,	$ .60
" Closed "	"	.60
Meig's Ring	"	.50
Hard Rubber, concave	"	.50
Inflated, Soft Rubber Ring	"	.75
Inflating Soft Rubber, with Stem and Stop-Cock, ring pear and globe shape	"	1.50
Inflators for Air Pessaries	"	1.50
Wadsworth's Uterine Elevator	"	5.00

POWDER INSUFFLATOR.



Powder Insufflator, for the Insufflation to the Pharynx or Larynx, or other superficial cavities of the body, of astringent or haemostatic powders; consists of a properly curved or straight, metal tube, (nickel-plated) attached to a net-covered rubber bulb.

The Powder is placed in a fenestrum D, in the upper surface of the tube; the opening tightly closed by the slide B, and the Powder discharged by compression of the bulb.

PRICE, as per cut, curved or straight $2.00
Postage, 18c.

Dr. Oliver's, with flexible tube and valve 2.50

Probangs' Sponge . . . . . each, .33

Pipettes :—

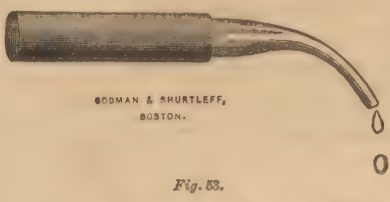


Fig. 53.

Fig. 52. This neat little invention enables the physician to drop one or more drops of any liquid, with entire certainty that the number wanted will not be exceeded.

It is held between the thumb and index finger; the rubber cap is compressed, first, to expel air, and, when charged, to expel the fluid.

Sent, post-paid, on receipt of price, 25c.

POCKET CASES AND INSTRUMENTS.

No. 1. Morocco Case,—German silver lock, two-folds, containing the following Instruments: Straight spear and curved probe-point Bistouries, Gum Lancet, Tenaculum, with buffalo-horn handles, straight Scissors, plain Artery Forceps, Dressing Forceps, Silver Probe, steel-grooved Director, Caustic Holder, Female Catheter, (silver-plated), three curved and two straight Needles, Ligature Silk $10.00

No. 2. Morocco Case,—two folds, German silver locks, containing the following, with Buffalo handles, straight spear and curve probe-point Bistouries, Gum Lancet, Tenaculum, straight Scissors, plain Artery Forceps, Dressing and Polypus Forceps, Silver Probe, steel grooved Director, Caustic Holder, Male and Female Catheter, combined (silver-plated), three curved and two straight Needles, and Ligature Silk 11.00

No. 3. Same as No. 2, with Shell Handle Instruments 12.00

No. 4. Best Turkey Morocco Case,—German silver lock, two folds, containing the following Instruments of best quality and finish, *Shell Handles:* straight spear and curved probe-point Bistouries, Gum Lancet, Tenaculum, spring catch Artery Forceps, Dressing and Polypus Forceps, straight Scissors, two Silver Probes, steel-grooved Director, Combined Male and Female Catheter (silver), Caustic Holder, three curved and two straight Needles, and Ligature Silk 16.00

No. 5. Same as No. 4, but with Female Catheter only, silver . . 14.00

No. 6. Best Turkey Morocco three-fold Case,—German silver lock, containing the following warranted Instruments of best quality and finish: *Shell Handles*: Scalpel, curved probe and straight spear Bistouries, Gum Lancet, Tenaculum, Abscess Lancet, straight and curved Scissors, spring catch Artery Forceps, Dressing and Polypus Forceps, Tongue Spatula, steel-grooved Director, two silver Probes, Caustic Holder (Ebony), combined Male and Female Catheter (silver), four curved and two straight Needles, and Ligature Silk 20.00

No. 7. Same as No. 6, with Ebony handle Instruments, and plated combined Male and Female Catheter. 17.00

No. 8. Same as No. 6, with slide catch to Shell Handle Instruments, fixing the blades when open or shut 22.00

No. 9. Russia Leather two-fold Case,—German silver lock, Prof. Gross' Compact Case, containing the following warranted Instruments, with double shell-handle slide-catch Instruments: Scalpel and straight spear Bistory, curved probe and curved spear-pointed Bistouries, Gum Lancet and Tenaculum, straight Scissors, Artery and Needle Forceps combined, Dissecting Forceps, Polypus and Dressing Forceps, Exploring Needle, combined Male and Female Catheter and Caustic Holder (plated), Grooved Directors, two silver Probes, six Needles and Ligature Silk 22.00

No. 10. Compact Case,—Best Turkey Morocco two-fold Case, with silver lock, containing the following warranted Instruments. The cutting instruments being shell handle, double-bladed, with slide catch, to fix the blades when open or shut. Scalpel and curved spear Bistoury, straight spear and curve probe Bistoury, Gum Lancet and Tenaculum, straight Scissors with lock-joint, spring catch Artery Forceps; Universal Forceps, (comprising Polypus, Dressing, Needle, and Tumor Forceps, single or double Tenaculum, with lock-joint); silver-grooved Directors, two silver Probes, combined Male and Female Catheter and Caustic Holder (silver), six Needles and Ligature Silk 25.00

No. 11. Compact Case,—same as No. 9, with Charriere's (French) Instruments 32.00

☞ *Any changes in the above Cases can be made to suit the buyer.*

Pocket Cases of Instruments made up to Order, with any number or style of Instruments required, of our own or of Charriere's (French) manufacture.

Respirators,	for mouth only, wire, gold plated			$3.00
"	nose and mouth, hair cloth			3.00
		Short.	Medium.	Long.
Rectum Tubes,	English, elastic	.75	1.00	1.50
" "	French, "			1.00
" **Dilators,**	new, assorted		each,	1.00

Syringes:—

NEW HYPODERMIC SYRINGE.

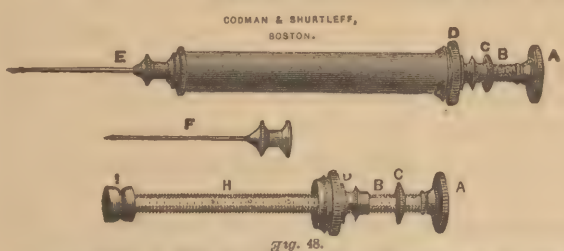


Fig. 48.

These cuts (two thirds the actual size) represent a new Hypodermic Syringe of our manufacture.

It is of German Silver, plated outside and inside with Nickel, and therefore not liable to be acted upon by any of the solutions used for Endermic Injections.

The barrel is perfectly smooth and uniform in size throughout; and the piston, which has the double parachute packing, operates with remarkable smoothness. There are two sharpened and tempered steel tubes, differing in size and length, thoroughly plated with gold. They are connected with the barrel by a screw thread.

This Syringe has a capacity of thirty minims, and a scale on the piston rod may be used to indicate accurately the quantity required and used.

No. 1 has scale with cross lines for each minim. No. 2 has the same, and, in addition, the numbers 5, 10, 15, 20, 25, and also screw thread H B, and nut C, as represented in Fig. 48, enabling the operator to graduate the quantity required with entire ease and certainty. These Syringes are so thoroughly and strongly made as to be free from the annoying accidents common to most Hypodermic Syringes, and we believe that for convenience, durability, and nicety of construction, they have no superior.

PRICE, in neat morocco case, No. 1, $5.00; No. 2, $5.50. Postage, 12 cents.

Other Hypodermic Syringes.

No. 3. Hard Rubber, graduated to half and quarter of whole capacity, two steel gilt tubes, in neat case, $3.50. Postage, 12 cents.
No. 4, Same description, not as perfect, $3.00. Postage, 12 cents.
No. 5. Glass, graduation engraved on barrel; silver-plated mountings, two steel-gilt tubes, $4.00. Postage, 12 cents.
No. 6. Glass, as above; piston rod graduated, numbered, and screw nut, $5.00. Postage, 12c.
No. 7. Same as above, with silver mountings, $7.50. Postage, 12 cents.
No. 8. Lüers, (French), graduation as Nos. 5 and 6, price, $13.00. Postage, 12 cents.

Also, new Tubes for Hypodermic Syringes; and Syringes of every kind repaired and made to order.

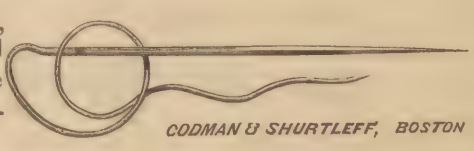
Syringes, Catarrhal, hard rubber . . . . . each, $1.50
" " " " with silver tube . . . " 2.50
" Enema, Davidson's, No. 1 . . . . . " 2.00
" " " " 2 . . . . . " 1.75
" Vaginal, hard rubber, No. 2 . . . . . " 1.25
" " " " " 3 . . . . . " 1.50

Stethoscopes:—

Cedar . . . . . each, .50
Ebony . . . . . " 1.00
Flexible . . . . . " 1.50

Stomach Pump, Brass, with Enema Attachments . . . $16.00
" " **and Apparatus** for Paracentesis Thoracis, approved by Dr. Henry I. Bowditch, accompanied with directions kindly furnished by him 30.00
Sponge Holders, Buck's curved 1.25
" " " straight 1.00
" **and Caustic Holder combined,** having one straight and one curvable point of each 3.00

Sutures, armed, Dr. E. Cutter's, consists of a straight or curved needle with silver or copper wire soldered to it, having no shoulder; length of wire, 18 inches.



PRICE, straight needle, with fine silver wire, ...30
" curved " " " " " 40
" Large straight needle, and large copper wire for post mortem, each .30

Specula, Vaginal, glass reflecting 1.00
" Rectum " " 1.25
" Brown's Wire Tractors, each 50
" German silver, three-blade 11.00
" " " H. R. Storer's modification of Cusco's . . 6.00
" Ricord's Bivalve, German silver 7.00
" Sim's, nickel plated " " 4.00
" Cusco's " " 5.50
" " folding " " 8.00
" Thomas' German Silver 12.00
" " improved " 22.00
" Taylor's " 7.00
" Nott's " 12.00
" Four Valve " . . . . . 8.00 and 12.00
" Rectum, O'Reilley's, steel 5.00
" " Hilton's, nickel-plated 4.50
" " Bivalve 4.00
" " Clam shape 4.00

Scissors for Pocket Cases:—
" Straight . . . . . .75 to 2.00
" Curved . . . . . 1.00 " 2.00
" Eye . . . . . .75 " 2.00
" Uterine. See Uterine Instruments.

Trocars, with silver canula. Various sizes, each 1.75
Trephines, Galt's 4.50
" Elevators for use with 75
Tourniquet, Bigelow's improved 4.50
" Field 75
" Massachusetts General Hospital, steel, nickel-plated . 15.00
Tonsillators, Fahnestock's 7.00
" " improved 10.00
" Warren's 9.00
" Massachusetts General Hospital 10.00
" Automatic, transfixes and removes with one movement of one hand 12.00
" French 10.00
Tenotomes, Ebony handles 1.25
" Ivory " 1.50
Tracheotomy Tubes, double, Hard Rubber, ... 3.00
" " silver, according to size, . 5.00, 5.50, and 6.50
" **Dilators** 6.00

Tongue Depressor, Tractor, and Case Spatula:—

The cut represents a new combined TONGUE DEPRESSOR, TRACTOR, and CASE SPATULA, of our own design. It is convenient for either use, strong, light, compact, $3\frac{1}{2}$ inches long, $\frac{3}{4}$ wide, $\frac{1}{8}$ thick, steel, nickel-plated, and does not rust. Convenient for pocket-case, medicine trunk, or the vest pocket.

Fig. 51.

PRICE, $1.00. Postage, 6 cents.

do. Turck's, steel, ebony handle 4.00
" Folding, steel, nickel-plated 2.50
" Steel, japanned 1.50
" Hard rubber $1 00, 1.75, 2.00

Throat Instruments:—

"	Brushes, Badger's Hair and Quill,	.25
"	" " " ebony handle, German silver staff	1.25
"	" Socket-handle for; same description	1.25
"	Brushes, numbered to order, in sets, to screw into the last, each	.25
"	Mirrors, five sizes, either	1.00
"	Mirrors, Concave, for mounting on forehead of operator, each	6.00

Thermometers, Clinical:—

"	Plain, graduated to 1-2 degree	2.25 and 2.50
"	Self-registering, graduated to 1-5 degree	4.00
"	Self-registering, graduated to 1-10 degree	7.00
"	Straight, graduated on stem, to 1-5 degree	4.00

Uterine Instruments:—

"	Sponge Tents, common sizes, each	.25
"	" " extra sizes and to order	.38 to 2.00
"	" Tent Carriers, spiral	1.00
"	" " Sounds	1.00
"	Sea-tangle tents, hollow	.35
"	" " " solid	.25
"	Forceps, bayonet-shape	2.00, 250
"	Sounds, Simpson's graduated, flexible, plated	2.00
	" " folding, " "	2.50
	" " with one notch " "	1.75
"	" " plain, " "	1.50
"	" Giddings, new, with external slide and scale for measuring length of womb	2.50
"	" Cutter's Vaginal	2.00
"	Lente's Uterine Probe, silver	1.25
"	" " " platina	3.00
"	" " " " hard rubber case	3.00
"	Sims' " " silver	1.50
"	Cutter's Vaginometer for measuring length of vagina	6.50
"	Scissors	4.00 to 6.00
"	Wire twisting forceps	4.00
"	Scarificators:—	
"	" Miller's, in case	7.00
"	" " without case	5.50
"	" Pinkham's improved, in case	8.00
"	" " " without case	6.00
"	" H. R. Storer's, in case	6.50
"	" " " " without case	5.00

Uterine Instruments: —

"	Warren's Canula Ecraseur	6.00
"	Syringes, hard rubber, long tube, each	1.50
"	Barnes' Uterine Dilators, with stop-cocks, set of three, with Inflator	6.00
"	Barnes' Uterine Dilators, with stop-cocks, singly . .	1.75
"	Barnes' Uterine Dilators, without stop-cocks, each . .	1.50

RUBBER URINALS,

FOR MALES AND FEMALES.

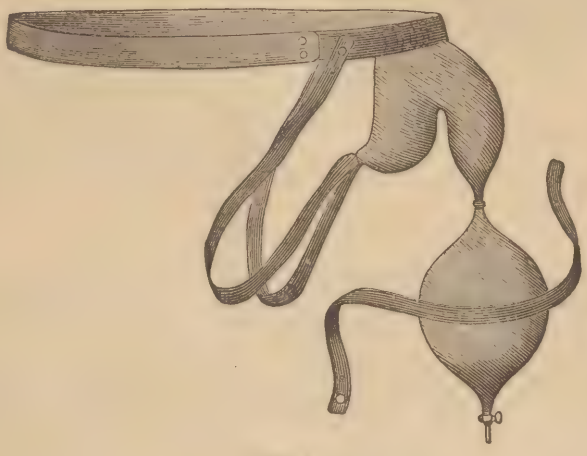


Fig. 1.

Fig. 2.

These Urinals are provided with valves, which prevent overflow; also with tightly closing stop-cocks, and are of the greatest service for persons afflicted with incontinence of urine. They are adapted for constant wear on the person, and are quite durable.

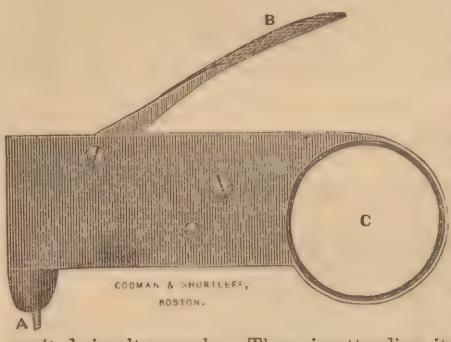
Male, without Scrotum Bag and Waistband, for day only, each . .	$2.50
" " " " with " " " " " . .	3.00
" with " " " " " " " " *Fig.* 1	4.00
" without " " " " " " and night, each .	6.00
Female, for day only, *Fig.* 2, each	3.00

THE AUTOMATIC VACCINATOR.

[WHITTEMORES PATENT.]

FOR USING THE CRUST.

MADE ONLY BY OURSELVES.



A. Perforator, having its end counter-sunk or hollowed to receive a small quantity of the crust.

In using the Instrument, the forefinger is passed into the Ring *C*, and the thumb pressed upon the Lever *B*. by which the Perforator is raised, and after reaching a certain height is disengaged by the proper mechanism, when it descends with the force of the spring, and, slightly puncturing the skin, deposits the virus.

A single, easy motion, in one direction, is all that is required to operate the Instrument,—the skin being punctured and the matter deposited simultaneously. The pain attending its use is so slight as rarely to awaken a sleeping child, while the operation is rendered much more certain than by other methods.

☞ Every one warranted. PRICE, in paper box, $3.00; in neat case, $3.50.

VACCINE VIRUS.

Always on hand and sent by return train in answer to orders by mail or telegraph.

We are able to supply physicians and the Trade with Vaccine Virus of absolute purity and excellence.

The Lymph we have heretofore furnished has given such satisfaction, that we now offer it with the renewed and complete assurance that no better service can be offered than that performed in this branch of our business.

Being aware of the difficulty of obtaining adequate supplies of *fresh* Vaccine Virus, we have secured the services of an experienced physician, who will keep a succession of heifers at his own stables, vaccinated with genuine non-humanized virus, from which we shall receive fresh supplies as occasion may demand. We shall also continue to furnish as before, for those who prefer it, a constant supply of crusts and tubes, selected from healthy infants.

Terms for Crusts, securely mounted for transmission by mail, postpaid:

Non-Humanized	$4.00
From Healthy Infants	3.00

For Ivory-Points, in packages of 10, *enclosed in Air-tight Metallic Tubes:*

Non-Humanized	$2.00
From Healthy Infants	1.50

Capillary Tubes:

Non-Humanized	$3.00

Purchasers will please keep a record of the number of each package. If used within one week after receipt thereof and found ineffectual, a new package will be forwarded on application.

We also furnish uncharged Ivory-Points for physicians' use, at the following rates:

Per 100 - - - - .80 Per 1,000 - - - $2.50

Veterinary Instruments:—

Balling Irons, Mouth Rasps, Teeth Forceps, Cattle Probangs, Trachea Tubes, (plated), Trocars, Fleams, (plain and spring), Seton Needles, Seton Scissors, Scalpels, Bistouries, Lancets, Nicking Knives, Castrating Knives, Embryotomy Knives, Wire Needles, Tin and Silver Wire, Horse Catheters, (flexible), Mare Catheters, (metal), Syringes, Milking Tubes, pocket cases of Instruments, etc., etc.

Vaginal Depressor, Sims' $2.00

OPHTHALMOSCOPES,

(Our own Importation.)

Allen's	$4.00	Liebreich's	6.00
Nachet's	8.00	Stelwag's	14.00
Jæger's	20.00	Binocular	25.00

Loring's.

LARYNGOSCOPES.

Tobold's - - - - - - - - small, $15.00; large, 22.00

Variety of others - - - - - - - - 16.00 to 30.00

PNEUMATIC ASPIRATORS,

Used in searching for deep-seated pus, - - - $14.00, 16.00, and 25.00

DYNAMOMETERS,

For testing strength of the hand, - - - - $7.00, 11.00, 13.00

AESTHESIOMETERS,

For determining the extent of local paralysis, - - $4.00, 9.00, 13.00

ARTIFICIAL LEECH.

Heurteloup's - - - - - - - - - - $10.00 to 18.00

Smiths, - - - - - - - - - - - - - $7.00

Apparatus for Transfusion of Blood.

Price, - - - - - - - - - - - - - $35.00

DAY'S SPLINTS.

(Whole set consists of the following number of Pieces)

Extension Bar and Gaiter,
1 Large Double Incline Plane,
1 Medium Incline Plane,
1 Small Incline Plane,
8 Radius Splints,
6 Forearm,
5 Interosseous,
3 Joint Arm,
3 Condyle and Humerus,
2 Clavicle,
5 Dressing Splints,
4 Patella Splints,
12 Ankle Splints.

We sell them singly or in sets.

Price per Set, - - - - - - - - - - - - $75.00

Ahl's Adaptable Porous-Felt Splints.

(Set consists of 50 Pieces.)

Sold in Sets only, Price, - - - - - - - - - - $30.00

CRIMEAN SPLINTS.

Set of 5 Flexible Pieces for Dressing.

Price per Set, - - - - - - - - - - - $1.25

SAYRES' SPLINT,

For Hip Joint Disease.

Price, - - - Common Size, $12.00; Extra Sizes, $14.00 to 16.00

FOX'S CLAVICLE APPARATUS,

(Bartlett's Modification,)

For Fractured Clavicle.

Two Sizes, Each, - - - - - - - - - - - $2.00

TRUSSES FOR ADULTS.

Ball and Socket, hard or soft Pads	single,	$4.00
" " " " " " "	double,	7.00
Ratchet, hard or soft Pad	single,	4.00
" " " " "	double,	7.00
Spiral-Spring Pad	single,	4.00
" " "	double,	7.00
French Style, or long Pad	single,	4.00
" " " " "	double,	7.00
L. B. White's Patent Lever, hard Pads	single,	$7.00 to 10.00
" " " " " "	double,	10.00 to 20.00
Hard Rubber	single,	8.00
" "	double,	10.00
Moc-main or Variocele		
Trusses for Prolapsus Ani		
Dr. Banning's, with separate attachments for either kind of Hernia or Prolapsus, and for spinal and abdominal support		10.00 to 20.00

CHILDREN'S AND YOUTH'S TRUSSES.

Ratchet, hard or soft Pads	single,	$3.00
" " " " "	double,	5.00
French, soft Pads	single,	3.00
" " "	double,	5.00
" cheap style, soft Pads	single,	2.00
" " " " "	double,	3.00

UMBILICAL TRUSSES AND BELTS.

Umbilical Trusses	$5.00
" Belts, with Adjustable Pads	5.00
" " Children's	2.50

ABDOMINAL SUPPORTERS.

Chapin's	$4.00
Boston	4.00
London	5.00
Philadelphia, with pads giving support on lateral muscles	7.00
Fitch's	4,00
Banning's, with attachment for either kind, of Hernia, or for Prolapsus Uteri, Prolapsus Ani, or Spinal Curvature	
Mrs. Betts', with Prolapsus Pad	7.00

The above described Trusses and Supporters are nearly all of our own manufacture, and will be found of the first class as regards quality, adaptation, and workmanship. The prices are those for which we adapt them to the patient. Physicians sending measures, and taking the trouble and responsibility of fitting patients, will receive them at a discount of 33⅓ per ct. from these prices.

SILK ELASTIC ABDOMINAL BELTS,

For use during pregnancy, and when abdominal support is required . . . $10.00

SPINAL SUPPORTERS.

All kinds of apparatus for Club Feet, Weak Ankles, Bow Legs, Malformations, &c., made to order, to meet requirements of each case.

SHOULDER BRACES, SUSPENSORY BANDAGES, &c.,

☞ DIRECTIONS for measuring for Trusses, Supporters, Crutches, Apparatus for Deformities, &c., will be sent if requested.

DENTAL DEPOT.

CODMAN & SHURTLEFF,

MANUFACTURERS AND IMPORTERS OF

Dental Instruments and Materials,

OF EVERY KIND-

Gold and Tin Foil; Gold, Silver, and Platina Plate and Wire,

MANUFACTORY,

Nos. 13 and 15 Tremont Street, Boston.

Instruments Made to Order.

EXCAVATORS AND PLUGGERS RE-POINTED.

CONSTANTLY ON HAND, BEST MANUFACTURE OF

Vulcanite and Plate Teeth,

NITROUS OXIDE APPARATUS AND INHALERS,

VULCANIZERS, LATHES, CHAIRS, EXTENSION BRACKETS,

And all articles used in the Office or Laboratory.

TEETH EXTRACTING FORCEPS,

Every pair of Extracting Forceps bearing our name is of the best material and of first class workmanship. Warranted one year from date of sale.

Price Octogon Joint $2.75

Pneumatic Aspiration,

AFTER THE MANNER OF DIEULAFOY.

"It is always possible, owing to Aspiration, to search for a fluid collection without any danger, whatever may be its seat or its nature."

"I have thrust these Needles into almost every part of the body, into the Joints, the Liver, the Spleen, the Bladder, the Intestines, the Lungs and the Meninges, and I can affirm, and a great number of observers affirm with me, that we have never seen consecutive accidents."

Dieulafoy on Pneumatic Aspiration, pp. 21, 24.

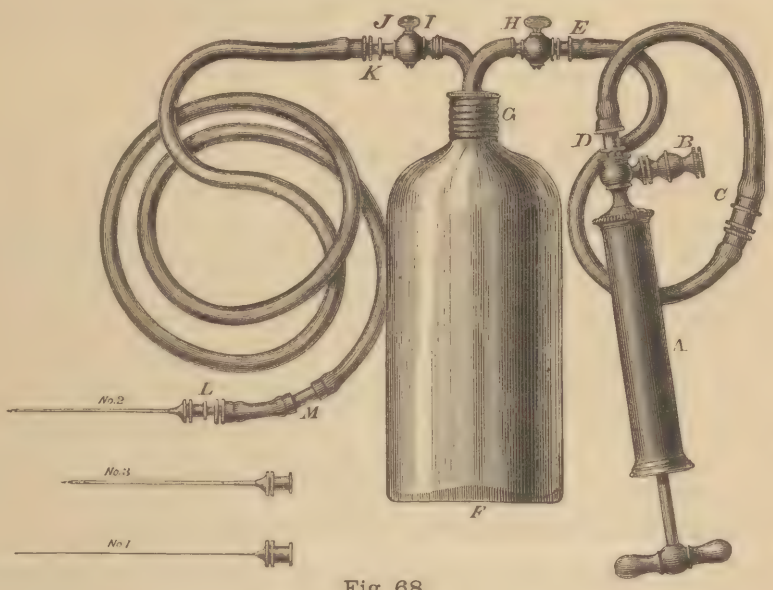


Fig. 68.

DESCRIPTION.

A, Brass Air Pump. ***B***, ***C***, Chambers containing Valves. By reversing the position of the chambers, the pump may be used at will as an exhaust or as a force-pump. A double milled circle around one end of each indicates, when these circles on both chambers are *towards* the pump, that it is an exhaust pump; when the circles are turned from the pump, that it is a force-pump. The chamber, ***C***, is reversed by turning it with the tube end for end; ***D***, ***E***, Metallic Joints or Couplings, either of them fitting the pump or the air-cock, ***H***, as required. ***F***, Glass Receiver of sixteen-ounce capacity, having a coarse screw-thread cast in the glass of the neck so as to screw into a corresponding thread in the brass cap, ***G***, making an air-tight joint by means of rubber packing. ***I***, Fluid Cock. ***K***, ***L***, Metallic Couplings. ***M***, short piece of Glass Tube to give early notice if fluid has passed the needle. Nos, ***1***, ***2***, and ***3***, Aspirator Needles, steel, hardened and tempered at cutting point and plated with gold.

WE INVITE THE ATTENTION OF THE MEDICAL PROFESSION TO THIS

NEW APPARATUS FOR ASPIRATION,

Constructed upon the general plan of Potain's modification of Dieulafoy's Aspirator, but containing the following improvements and inventions of our own:—

1st, — Means of changing the pump from an exhaust to a force-pump, and *vice versa*, thereby enabling the operator not only to withdraw an abnormal fluid, but to inject the cavity through the tubes and needle of the apparatus with one adapted to induce healthy action. — *See Dieulafoy on Aspiration, pp.* 276, 278.

2d, — The employment, in our apparatus No. 1, of a metal Screw Cap, fitting the neck of the receiver supplied with this apparatus so securely that it cannot be forced from its place by condensed air while injecting, or accidentally removed while the receiver is in a state of vacuum for aspiration.

3d, — The use of indestructible valves.

Instead of the oiled silk valves of French and other American apparatus, which are almost certainly injured by contact with liquids — for instance, the accidental and almost unavoidable introduction either of a few drops of the aspirated fluid, or of the oil used for lubricating the pump, — we employ a light metal valve, fitting a metallic seat, the two ground together so as to secure close contact. They are unchangeable in form, and cannot be injured by contact with fluids. If desired, they may be as freely used, and the pump also, for liquids as for air. These valves are readily accessible by unscrewing the valve-chambers, and require no care beyond occasionally wiping valve and seat with soft paper or cloth to remove dust or adherent particles should they fail to work perfectly.

4th, — An attachment for evacuating the contents of the stomach by adaptation to the pump and valves which accompany the aspirator, of a suitable stopper, cocks, rubber hose, and stomach tube. The stopper is of form and size to fit almost any large bottle, jug, or demijohn such as may be found in most houses.

Thus, at half the cost of an ordinary stomach pump, the physician having the aspirator may supply himself with a means of evacuating and of washing out the stomach equal, if not superior, to any in use hitherto.

Our Aspirators have been ordered for use in the United States army, as having been selected from among a large number of competing ones.

Commendations bestowed upon Nos. 1 and 2, by physicians familiar with the latest European and American Aspirators, lead us to believe that, in some important particulars at least, they are superior to any.

In his work on Pneumatic Aspirations, Dieulafoy shows the harmlessness of the Aspiratory Puncture and its great superiority to the Exploring Trocar as a means of accurate diagnosis in all collections of Pathological Fluids. It has been used with unprecedented success in Retention of Urine, Reduction of Strangulated Hernia, in Ascites, Hydrothorax, Empyema, Pneumothorax, Effusions into the Pericardium, Serous, Purulent and Hematic Effusions of the Knee, Hydrocele, Hydatid Cysts, Abscesses of the Liver, and in various other Pathological Leisons.

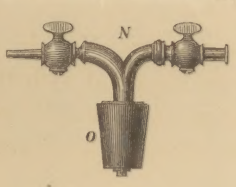


Fig. 69. The Stopper and Cocks supplied with Apparatus No 2.

PRICES OF APPARATUS.

No. 1. Air Pump — exhaust or condensing as described; receiver, with screw cap, of capacity of sixteen or of six ounces, as preferred; three steel, gold-plated Aspiratory Needles, together with the necessary tubes, stop-cocks, &c., &c., as shown in Fig. 68, fitted in a neat case, accompanied with printed directions $20.00

No. 2. The same, without receiver and with rubber stopper (see Fig. 69) to fit almost any bottle of quart capacity, or less, instead of screw cap arrangement, also with printed directions 18.00

No. 3. Dieulafoy's Notched Aspirator, Nickel-plated, with two Needles, tubes, &c., in case 14.00

No. 4. Stomach Attachment, as described, adapted to pump accompanying Nos. 1 and 2, additional 8.00

The foregoing are the product of our own factory, and are warranted in every respect.

Also, **Dieulafoy's Rack Aspirator** 40.00

For Pump and Brass parts of Nos. 1 or 2, Nickel-plated, add 1.50

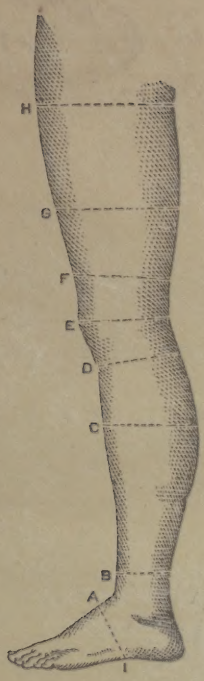
Also Trocars, with and without Stopcocks, to fit any of the above . 2.00 to 6.50

CODMAN & SHURTLEFF,

Makers of Surgical Instruments,

13 and 15 Tremont Street, Boston.

ELASTIC HOSE.



DIRECTIONS FOR MEASURING.

☞ Indicate the measure *around the limb* in inches, opposite the dotted lines of the cut.

For Stocking to cover the entire limb, measure at A B C E G H.

For Stocking to reach to D measure A B C E G.

For Stocking to reach to G, measure at A B C D.

For Knee-cap, measure at D E F.

For length of Stocking, measure from 1 upwards.

PRICES.

(THESE PRICES ARE FOR SINGLE HOSE, NOT PAIRS.)

To reach to H —	
Best Silk	$13.00
Cotton	8.00
To reach to G —	
Best Silk	8.50
Cotton	5 50
To reach to D —	
Best Silk	5.00
Medium Silk	4.50
Cotton	3.00

To reach from D to F (Knee-Caps) —	
Best Silk	$3.50
Medium Silk	3.00
Cotton	2.50
To reach from A to B (Anklets) —	
Best Silk (only)	3.50

☞ *A Discount of 25 per cent from these prices to Physicians.*

We will send the Hose by mail, if so ordered, provided the following sums necessary for pre-payment of postage accompany the order in addition to the price: —

Hose reaching to H	.36	Hose reaching to D	.18
Hose reaching to G	.24	Knee-Caps and Anklets	.12

Unusual sizes and forms for special cases made to order. Also, Elastic Abdominal Belts for Obesity, Pregnancy, Weakness, &c.

Physicians ordering the above for patients, will receive them at a discount from retail prices.

Having our Factory, with steam power, ample machinery, and experienced workmen, connected with our Store, we can promptly make to order, in the best manner, new Instruments and Apparatus, and supply new inventions on favorable terms; also sharpen and repair Surgical and Dental Instruments.

CODMAN & SHURTLEFF,

13 and 15 Tremont Street, Boston.

APPARATUS FOR PARACENTESIS THORACIS,

Approved by DR. HENRY I. BOWDITCH,

Accompanied with Directions kindly furnished by him.

CAMMANN'S STETHOSCOPES, Disarticulating.
OTOSCOPES. LARYNGOSCOPES, Simple Throat Mirrors.
OPHTHALMOSCOPES,— Greefe's, Liebreich's, Anagnostakis's,
APPARATUS FOR MANUFACTURE OF
NITROUS OXIDE AND OXYGEN GAS.
MILLER'S, PINKHAM'S and H. R. STORER'S
INTRA-UTERINE SCARIFICATORS.
DEWEE'S EVAPORATOR.
SPLINTS AND FRACTURE APPARATUS.
BIGELOW'S TOURNIQUET,
SAYRE'S SPLINTS FOR HIP-JOINT DISEASE.
BRISTLE PROBANGS.
HYPODERMIC SYRINGES, great variety.
LENTE'S INTRA-UTERINE CAUSTIC INSTRUMENTS.
HOLT'S DILATOR.
BARNES' DILATOR.
UNIVERSAL SYRINGES.
INHALERS.
FEVER THERMOMETERS.
GALVANIC BATTERIES AND APPARATUS.
MEDICINE TRUNKS AND POCKET MEDICINE CASES.
AMPUTATING, TREPHINING, POCKET AND OTHER INSTRUMENTS,
in sets, or single.
THE VARIOUS INSTRUMENTS OF DR. H. R. STORER, AND OF DR. SIMS, FOR THE TREATMENT OF UTERINE DISEASES.

Apparatus for Club Feet, Weak Ankles, Bow Legs, Spinal Curvatures, &c., made to order.

Crutches, the best patterns, all sizes, always on hand.

Respirators, to prevent coughing on entering cold or warm air, also to prevent inhalation of dust.

Teeth, Forceps, Pluggers, Scalers, Excavators, Operating Chairs, Spittoons, Mineral Teeth, Gold and Tin Foil, and all other Instruments, Implements and Materials used in the practise of Dentistry.

Skeletons, articulated and disarticulated.

Skulls, articulated, disarticulated, and sawed, showing, sinuses, internal and median ear.

Manikins, Anatomical and Pathological Models, Charts, &c., on hand or imported to order.

☞ Price-Lists of Manikins, Models, Skeletons, &c., furnished on application.